MANUALS OF CATHOLIC PHILOSOPHY.

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PSYCHOLOGY

BY

MICHAEL MAHER, S.J.

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PREFACE.

DURING a very large part of the present century the standard English text-books on Psychology were the writings of Mill and Dr. Bain. The cause of this was probably not so much any general acceptance of the teaching of the school to which these writers belonged by Universities or Examiners, as the fact that their works—and almost theirs alone—contained in an interesting and tolerably popular form a treatment of psychological subjects which could be apparently detached from the more abstruse metaphysical problems. Be the explanation what it may, all thoughtful men who adhere to any form of Christianity, or even of Theism, must consider such a result lamentable. It could not have been other than profoundly injurious to the intellectual and moral health of a nation, to have successive generations of young, vigorous, and inquiring minds bred up on the philosophical diet of a school, which—whatever euphemistic title we may choose to call it by—virtually denies the Spirituality and Immortality of the Soul, the Freedom of the Will, and the reality of Moral distinctions. Fortunately, in recent years there has been somewhat of an improvement in this respect, and though the present philosophical outlook seems cheerless enough, it at all events possesses this advantage over the situation of thirty years ago—that the monopoly of a narrow and intolerant sect has been destroyed, and the science of Psychology is no longer deemed in England identical with the teaching of a single specially anti-Christian school. Every day there issues from the press a rich variety of psychological works, written from all possible points of view. Skilful translations, too, of not infrequently very second-rate foreign authors, and erudite monographs on obscure long-forgotten writers, whose claims to recognition by posterity are somewhat difficult to discern, appear in abundance. In such circumstances I venture to hope that an attempt at an English exposition of the Psychology of Aristotle and St. Thomas, and an application of their principles to modern questions, ought to be of interest, not only to the Catholic reader, but to every student of Philosophy.

It is, I believe, universally admitted, even by those who have least sympathy with mediæval thought, that the Scholastic Philosophy has had more influence on the intellectual, literary, and moral development of the human race, than any, nay, than all other systems of speculation taken together. Yet the notion of the Scholastic Philosophy which can be gained from the sketches or rather caricatures of that Philosophy usually presented by English authors, is of the most imperfect and misleading kind. Consequently, an elementary work giving the substance of Scholastic psychological teaching, seems to be a *desideratum;* and I cherish the hope that the reader who has hitherto known the doctrines of the Schoolmen only under the form in which they are ordinarily exhibited by British writers, will find them considerably more reasonable than he had imagined.

The exact scope of the present Manual of Psychology may, perhaps, be most easily indicated by explaining its genesis. It is based on a series of lectures given for some time past in alternate years to the students of the Higher School who follow the Philosophical course at Stonyhurst College. The object of that course of Philosophy is to afford these young men a careful discipline in the teaching of Aristotle and St. Thomas, and to exercise them more especially in the application of the principles of the Peripatetic Philosophy to the problems and difficulties of the present day. In the lectures on Psychology it was also necessary to keep in view the needs of those students who require a knowledge of this science for Public Examinations. Accordingly, the aim of this work is to present to the English reader an exposition of positive doctrine such as is contained in the psychological writings of

Liberatore or Xigliara, together with a more detailed treatment of those questions which have attracted most attention in the recent psychological literature of this country.

The better to carry out this secondary part of my programme, I have endeavoured to give succinct accounts of all the more important psychological questions which have been discussed during the modern period. I have been led to introduce so much historical matter, partly by the general aim of the work—the interpretation or solution of new problems by means of old principles; partly because experience has assured me that the history of a dispute is, as a rule, the easiest as well as the most interesting way of enabling the student to attain a clear comprehension of the point at issue; and partly because I am convinced that the chronological development of a theory is a most thorough test of the value of the principles from which it started. I have not, however, in these sketches confined myself to the mere narration of opinions. My exposition throughout is accompanied by criticism, and my constant aim has been to exhibit counter hypotheses in such a manner as to bring out clearly the true doctrine.

Moreover, I have deemed it advisable to indicate the methods and chief results of the most recent investigations in Physiology and Psychophysics which seem to touch on our subject. It is true, indeed, that very little light is thrown on Philosophical or Psychological problems by these branches of knowledge. Still under all circumstances it would be desirable that the student of the human mind should have an elementary acquaintance with the organic conditions of mental life; but at the present day, when advocates of Materialism, presuming on the ignorance of their audience, are frequently found to declare that the progress of Physiology or Physics has disproved the spirituality of the soul, an understanding of the real nature and significance of the achievements of these sciences in this direction, is of the very first importance.

It will scarcely be necessary to remind the young Catholic reader that the fact of my frequently citing or referring to certain writers does not in any way imply a general recommendation of their works as likely to assist in the attainment of truth. I have, in fact, very often preferred to illustrate a point by some inconsistent admission on the part of an adversary. At the same time, in order to assist the advanced student, whose course of studies may require more profound knowledge of current controversies, I have indicated under the heading *Readings*, special portions of various authors, which, even if sometimes not as accurate as I should wish, may yet, I believe, be consulted with profit.

The conditions of the series have compelled me to discuss many subjects more briefly than I would have desired, and it is the narrowness of the prescribed limits which has caused me to handle in notes several questions that would claim a place in the body of a larger work. However, even where forced to be short, I have endeavoured to exhibit the general lines on which a larger treatment should run.

I have sought both in the foot-notes and in the "Readings" to acknowledge the various sources whence I have derived assistance; but, in addition, I desire to express my obligations to an unpublished MS. of Father Herbert Lucas on Phenomenal Psychology, which he kindly placed at my disposal.

As regards the arrangement of the matter, the more special or abstruse questions are discussed in smaller type. The general reader will, therefore, find in the larger print a brief treatment of the questions of most importance; and it may perhaps be advantageous for the student completely unacquainted with philosophical literature on first perusal to omit or read in a merely cursory manner the portions contained in smaller type. This will probably be found advisable, at all events up to chapter xviii. Thenceforward, however, the sections dealing with difficulties or objections to our doctrine should be considered essential, and, I hope, may be intelligible and satisfactory.

JULY, 1890.

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NOTICE TO THE THIRD EDITION.

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PSYCHOLOGY.

INTRODUCTION.

CHAPTER I.

DEFINITION AND SCOPE OF PSYCHOLOGY.

PSYCHOLOGY (τῆς ψυχῆς λόγος) is that branch of philosophy which studies the human mind or soul. By the *mind* or *soul* (ψυχή) is meant the thinking principle, that by which I feel, know, and will, and by which my body is animated. The terms Ego, Self, Subject, Spirit, are used as synonymous with mind and soul, and, though slight differences attach to some of them, it will be convenient for us (except where we specially call attention to divergencies of meaning) to follow common usage and employ them as practically equivalent.[1]

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[1] In strict language the word *mind* designates the animating principle as the *subject of consciousness*, while *soul* refers to it as the root of *all forms of vital activity*. *Spirit* is of still narrower extension than mind, indicating properly a being capable of the *higher*, *rational*, or *intellectual* order of conscious life. *Ego* and *self* strictly signify the *whole person* constituted of soul and body, while *subject* marks the contrast between the mental and external or physical world. The derivative term *subjective* is similarly opposed to *objective* as denoting *mental* in opposition to *material* phenomena—what pertains to the *knowing mind* as contrasted with what belongs to the *object known*

We may here be met with the objection that we are unwarrantably postulating at the very commencement of our work the most disputed doctrine in the whole science of Psychology—the existence of some "inscrutable entity," called the soul. To this we reply that for the present we only use the term provisionally to indicate the source or root of our conscious states. We make no assumption as regards the nature of this principle. Whether it be the brain, the nervous system, the whole organism, or a pure spirit, we do not yet attempt to decide. But we claim to be justified, in employing the familiar terms soul and mind to designate this apparent bond, by the obvious fact that our various mental states manifest themselves as bound together in a single unity.

The subject-matter of Psychology is, then, the Soul or Mind. The psychologist investigates those phenomena which we call sensations, perceptions, thoughts, volitions, and emotions; he analyzes them, classifies them, and seeks to reduce them to the smallest number of fundamental activities. He studies the nature of their exercise and the laws which govern their operations, and he endeavours to enunciate a body of general truths which will accurately describe their chief and most characteristic features. But Psychology cannot rest here. It is a branch of *Philosophy*,[2] and if it is to justify this title it is bound not to be satisfied with the mere generalization of facts; it must pass on to inquire into the inner nature and constitution of the root and subject of these phenomena; it must ascend from the knowledge of the effect to that of the cause. Consequently, a work which does nothing more than describe and classify the operations of the mind, omitting all discussion regarding the mind itself, is but an abortive attempt at a science of Psychology.[3] *La Psychologie sans âme,* is Hamlet without the Prince of Denmark. What is the meaning and value of life? What are we? Whence come we? Whither go we? These have ever been questions of profound interest to the human race, and it is the belief that Psychology can throw some light on them which has always vested with such importance this branch of Philosophy. Besides the fact that the chief interest for mankind in Psychology is due to the expectation that some information as regards the nature of the soul itself can be thence derived, there is another reason for the explicit treatment of these metaphysical problems here.

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[2] Etymologically, Philosophy (φιλοσοφία) is equivalent to the *love of wisdom*, but at a very early date it had come to signify the *possession* of the highest knowledge, or *wisdom* itself Wisdom or Philosophy, thus understood, was defined as *the science of things in their last causes*. The term, *Metaphysics*, was also employed as synonymous with Philosophy, to denote the science which investigates

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the ultimate principles of things. Metaphysics has been divided into *Ontology, General Metaphysics* or *Metaphysics proper,* also called General Metaphysics, which studies the nature and attributes of Being in general, and *Special Metaphysics,* including *Cosmology, Rational Theology,* and *Psychology,* which investigate special forms of Being. By many modern writers, the terms Philosophy and Metaphysics are used in a very vague and indefinite sense, to signify the investigation of all fundamental problems bearing on the ultimate origin, constitution, or end of things, and the nature of knowledge

[3] Yet such a truncated exposition of the subject is almost unanimously adopted by English psychologists *Confer.* A Bain, *Mental Science,* pp. 1- 3; J. Sully, *Outlines of Psychology,* pp 1, 2; J C. Murray, *Handbook of Psychology,* pp 1, 2; T. Ribot, *Contemporary English Psychology* pp. 15—20; J. D. Morell, *Outlines of Mental Philosophy,* pp. 1—3

The two sets of questions are incapable of isolation. They can never be really separated. Our final conclusions as regards many vital philosophical problems are necessarily determined by the view taken of the nature of mental activity in the empirical part of the science. The sensationalist doctrines, for instance, on perception, intellectual cognition, or volition, cannot be reconciled with the Hegelian or with the Intuitionalist conception of the mind. It is, consequently, only fair to the reader that the philosophical conclusions to which the treatment of mental phenomena presented to him logically lead, should be clearly pointed out.

The discussion of the former questions—the inquiry into the character of our various mental states and operations—is called by different writers *Phenomenal, Empirical,* or *Experimental Psychology*; whilst the investigation into the nature of the mind itself is styled *Rational Psychology*. Sir W. Hamilton describes this second part as Inferential Psychology, or the Ontology of the mind.[4] The term *Phenomenal* is applied to the first part of Psychology, because it investigates the various *phenomena* of the mind, the facts of consciousness. It is called *Empirical* or *Experimental*, because we have an immediate experience of these facts: we can study them by immediate observation. The second part of our subject is marked by the epithet *Rational*, because the truths which are there enunciated are reached, not by direct experience, but by reasoning from the conclusions established in the earlier part. In the present work we have devoted Book I. mainly to Empirical Psychology, whilst Book II. is confined to the problems of Rational Psychology. We have not, however, sought to make the division rigid: in fact, our chief contention is that a complete and accurate separation of the two branches of Psychology is impossible. Thus we have included in our First Book certain questions regarding external perception, memory, the origin of ideas, the nature of intellectual activity, and the freedom of the will which would now-a-days be usually allotted to the sphere of Rational Psychology. The two branches of the science of course employ both observation and inference; but while frequent appeal to the facts of consciousness is a prominent feature in the first stage, deductive reasoning prevails in the last. Starting from the knowledge acquired in Empirical Psychology regarding the character of the operations and activities of the mind, we draw further conclusions as to the nature and constitution of the root or subject of these activities. The knowledge of the effect leads us up to that of the cause; the mode of action indicates the nature of the agent. We may thus hope by a judiciously combined use of reasoning and observation to attain to a well grounded assurance regarding the existence of an immaterial soul, its relations with the body, its origin, and its future destiny.

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[4] *Metaphysics*, Vol. I. p 125.

The scope of *Psychology* will be made still clearer by pointing out how it is connected with other kindred sciences, and how it is separated from them. In the scheme of strictly metaphysical branches of speculation it stands opposed to *Cosmology*, as the Philosophy of *spirit* to that of *nature*. The latter science seeks to investigate the inner constitution of matter, the nature of space and time, and the ultimate principles or laws which underlie and govern the course of the universe; while Psychology confines itself to the study of the subjective world, the mind of man. There are, however, other departments of Philosophical knowledge of a subjective character; both *Logic* and *Ethics* deal with mental activities. As regards *Rational Psychology*, which inquires into the nature of the mind itself, there is no difficulty in seeing how it is differentiated from these sciences, so we need only keep *Empirical Psychology* in view when comparing them. Both *Psychology* and *Logic* study mental states, but whereas the former embraces within its ken sensations, emotions, volitions, and all other classes of conscious acts, the latter is limited to the consideration of cognitive operations, and mainly to that of reasoning. Again, the points of view from which they approach their subject-matter is different. Psychology looks on our mental processes as natural events *interesting in themselves*. It seeks to describe and classify them, to explain their genesis, and to discover their laws or constant modes of action. It may, indeed, incidentally afford useful information regarding the acquisition of habits, the cultivation of the memory, and the training of other faculties; but its primary aim is *speculative*. Logic, on the other hand, is interested in mental operations *as representative of* *objective fact.* It is the science, not of thinking *in general,* but of *correct* thinking. It is less purely a speculative science, and in the eyes of some even its primary aim is *practical.* Its object is the discovery of the general canons of truth. It is, in the words of St. Thomas, "the science which teaches man how to order aright the acts of the intellect in the pursuit and attainment of truth." In a word, while Psychology studies thought merely *as a subject,* Logic investigates it *for an object.* The researches of the psychologist are directed towards the *causal connections* between mental states, and lead up to the apprehension of a body of *natural* laws—general truths describing uniformities of succession and co-existence among such states. Those of the logician centre upon the *rational correlations of intellectual acts,* and result in the formulation of a code of *normal* laws—a body of precepts—which can be disobeyed but under the penalty of error. In addition to these points of similarity and contrast, the two sciences are related by a certain mutual interdependence. Psychology, like every other science, must conform to the rules of right reasoning; it must observe the canons of inductive and deductive inference, and it must carry out the general precepts of Logical Method. On the other hand, the validity of thought may be seriously affected by its genesis. The materials with which the logician works are products which have been analyzed by the psychologist, and, consequently, although Logic is not properly based on Psychology, a false theory of the nature of our cognitive faculties may sap the very foundations of knowledge, and lead to a disbelief in the existence of all real truth. Logic may therefore at times have to appeal to a sound system of Psychology in justification of its fundamental assumptions.

Ethics as the science of morality is easily distinguished from *Psychology*. It investigates the right end of human action, the nature and foundations of moral distinctions, the grounds of moral obligation, and the sanctions of morality. It classifies virtues, vices, and duties, and promulgates the rules of right conduct. Whereas Psychology considers our mental activities in their *causes*, Ethics studies them in their *results*: and while Logic seeks to harmonize *cognition* with the order of the physical world—the *Real*; Ethics would conform *volition* to the order of the moral world—the *Ideal*.[6] In establishing, however, the existence of moral intuitions, and in exhibiting their character, appeal must be made to the philosophy of the mind. The nature of the mental activity called conscience, the genesis of moral sentiments, the formation of moral habits, and the freedom of the will, a truth on the proof of which moral responsibility in its universally accepted sense is absolutely dependent; all these questions—matters of the highest importance to the moral philosopher—belong to the sphere of Psychology.

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[6] We have noticed only the most striking points of contrast Strictly speaking, Logic is concerned for *all* truth—physical, metaphysical, and moral For a complete account of the province of Logic, cf. *Logic*, by R F. Clarke, S.J. c. i On the question how far Logic is to have allotted to it a practical aim, cf. *id* pp. 19—25

The term *Biology* is sometimes used in a wide sense to embrace all the branches of knowledge which treat of the phenomena of life. More properly, it comprehends two co-ordinate physical sciences,[6] *Morphology*, which investigates the structures of living organisms, and *Physiology*, which investigates their functions. The latter science stands in close relations to Psychology, both Phenomenal and Rational. The physiologist studies the various operations of our vegetative life, he examines into the action of digestion, respiration, growth, nutrition, and the other vital processes which take place within us. He observes the working of our several organs, and seeks to enunciate laws that will express the general uniformities exhibited in the aggregate of operations which go to constitute our physical life. These events are perceived by the external senses, and are ultimately reducible to movements in matter. Physiology is thus distinguished from Empirical Psychology, both by the *phenomena* of which it treats, and by the *faculty* through which these phenomena are apprehended. It is marked off on the other hand from Rational

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[6] The term *positive* science is frequently used to designate those branches of knowledge which deal with the laws of *phenomena*, facts observable by immediate experience. Some writers would confine the term *science* exclusively to this signification. Such usage is, however, illegitimate. The object of science is to discover causation, consequently, the inquiry into *primary* causes, which are properly the *real* causes, has *a fortiori* a right to this title For the sake of precision, however, the term *philosophical* science may be conveniently employed to denote those branches of knowledge which deal not merely with secondary, but with the higher or primary causes. Rational Psychology is in this sense a philosophical science, as compared with the phenomenalistic or so-called positive sciences of Physiology and Empirical Psychology

Psychology, as the *positive science* of the *physical* manifestations of life from the *philosophical science* which seeks to investigate into the *inner nature of the subject* of vital phenomena, both *physical* and *psychical*. Again, the vegetative and psychical activities proceeding from the same root reciprocally influence each other. Our sensations, intellectual operations, emotions, and volitions, are profoundly affected by the physical condition of the organism at the time, and in turn they modify the character of the functions of physical life. Consequently, as we shall see in the next chapter, Physiology forms an important supplementary source of knowledge in building up our science of Empirical Psychology. But Rational Psychology is still more concerned with the teaching of Physiology. Its scope is to investigate the inner nature of the subject or root of both psychical and vegetative functions, and the relations subsisting between that subject and the body. It is alike interested, therefore, in the sciences of conscious and of unconscious life, and its final conclusions must alike harmonize with the established truths of Physiology and of Empirical Psychology.

Readings.—On the dignity, utility, and scope of Psychology, cf. St. Thomas, *Comm. de Anima*, Lib. I. ll. 1, 2; Dr. Stöckl, *Lehrbuch der Philosophie*, §§ 1—3; Père Chabin, *Cours Élémentaire de Philosophie*, pp. 18—22.

CHAPTER II.

METHOD OF PSYCHOLOGY.

IN describing Psychology as the science of the human mind or soul, three conditions are implied—*first*, that Psychology has a definite subject-matter, the nature and activities of the thinking subject; *secondly*, that it possesses an efficient method: *thirdly*, that it comprehends a systematized body of general truths, or, in other words, that it embraces a number of facts in their relations to their universal causes. In our first chapter we sought to mark out clearly the field of our science; in the present we purpose to describe its method, pointing out the chief instruments of investigation which lie open to us; the rest of the work will be devoted to the satisfaction of the third essential requirement.

The subject-matter of Empirical Psychology is *consciousness*. Now states of consciousness can only be observed by *introspection*—that is, by the turning of the mind in on itself. Consequently this faculty of internal observation must be our chief instrument in the study of the mind. To its adjudication must be the first as well as the ultimate appeal in every psychological problem. Mental states can only be apprehended by each man's own consciousness. Their reality consists in this apprehension—their *esse* is *percipi*. Therefore the endeavour to decide as to their nature or origin by information gathered from any other source is obviously absurd. The greatest care must, however, be taken to notice accurately all the aspects of the phenomena presented to us, and to detect those numerous unobtrusive differences in the character of mental phenomena which may indicate profound divergency in the nature of their source. (The injudicious observer, impressed by the greater intensity of sentient states, may thus easily ignore the more subtle activities of our higher rational life, and so be led to form a conception of mind from which the most important features are absent.[1])

Still, although our mental states are of an evanescent character, and enjoy but a transitory existence, it must nevertheless be insisted on that they are facts as real as any in the universe. A sensation, an intellectual judgment, or a volition, possesses as much reality as a nervous current, a chemical solution, or a transit of Venus;] and whilst the most thorough-going sceptic cannot question the existence of states of consciousness, ingenious and acute thinkers have been found over and over again to deny us all certainty regarding material objects.

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[1] The truth of this remark is strikingly illustrated in the history of Mental Philosophy in this country by the manner in which the relational activity of the mind—its power of apprehending universal relations—has been ignored or misconceived by the entire sensationalist school from Hartley to Dr Bain. The writings of Stirling, Green, Bradley, and other thinkers of Hegelian tendencies have had in recent years the good effect of bringing about the re-discovery of this intellectual faculty, which occupied such a prominent position in the psychological system of the leading scholastic philosophers

This mode of investigating psychical phenomena by means of internal observation is called the *Subjective* or *Introspective Method.* It must be supplemented, however, by other lines of research, if we wish to make our conclusions as trustworthy and as widely applicable as possible. Appeal to these additional means of information constitutes what is called the *Objective Method* of inquiry, since they form part of the outside world, and are apprehended only through the external senses. But evidence gained in this way is of an essentially secondary or supplementary value, its chief use being that of suggestion or corroboration. The principal forms of objective investigation are the following:—

1. The results of other men's observations of their own minds as far as these results can be gathered from oral description, and compared with the results of our own individual experience.

2. The products of the human mind as embodied in language may afford valuable information. Comparative philology and the study of various literatures are here our chief resources. Language has been happily styled crystallized or fossilized thought, and under skilful handling it may be made to unfold many interesting secrets of past mental history. Thus the rich and varied vocabulary of the Tagan dialect, which contains over 30,000 words, a vast inherited wealth far beyond the needs of the present generation, is maintained by Professor Max Müller to point to a degradation of that race from a previous

condition of considerable mental development, rather than to a gradual evolution from a lower and less intellectual state.[2] Similarly the presence in various languages of words connoting certain moral ideas may constitute important testimony in disputed interpretations of consciousness.

3. A diligent study of the human mind as manifested at different periods of life, and in different grades of civilization, may throw much light on the laws which govern the development of the mental faculties, and on the conditions which have given rise to various customs, sentiments, and modes of thought. Historical researches into the manners, religions, and social institutions of different nations may here prove very fruitful.

4. The study of the instincts, habits, and other psychical activities of the lower animals, if undertaken in a sober and judicious spirit, can be made to yield considerable assistance in some questions. This sphere of investigation, when grouped with that just mentioned, is sometimes rather questionably dignified with the title of *Comparative Psychology*. However, the anthropomorphic tendency in man to project his own thoughts and sentiments into other beings renders this scientific instrument peculiarly liable to abuse. Still subject to proper precautions it may assist us materially. By means of it we may

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[2] Cf. "The Savage," *Nineteenth Century*, January, 1885, p 120 Professor Max Müller there argues very forcibly, that "the magnificent ruins in the dialects, whether of Fuegians, Mohawks, or Hottentots, tell us of mental builders whom no one could match at present." The Tagan language is that spoken by the natives of Terra del Fuego, the race which Darwin considered to be the lowest and least developed family of human beings yet found

advantageously apply the great inductive methods of difference and residues. The lower animals possess certain faculties in common with man, but they are deficient in others, and hence by a diligent study of their actions we are enabled to distinguish how much of man's conduct is necessarily due to different faculties.

5. The science of Physiology is also a source of valuable information. The intimate nature of the relations between the mind and the organism, so strongly emphasized in the Aristotelian and Scholastic Philosophy which conceives the soul as the *form* of the body, receives more elucidation every day with the advance of biological science. In examining into the operations of sense, the development of imagination and memory, the formation of habits, and the transmission of hereditary tendencies, the advantage of a knowledge of the physical basis of these phenomena is obvious; but as all mental processes, even the most purely spiritual acts of intellect and volition, are probably accompanied or conditioned by cerebral changes, too much labour cannot be devoted to the study of the constitution, structure, and working of the organism. At the same time care must be taken to distinguish clearly between the two orders of facts. The mental state and its physiological accompaniment or condition are separated, as Professor Tyndall says, by an "impassable chasm." It is then not sufficient to explicitly admit once or twice, as most writers of the Sensist school do admit, that the neural and psychical events are divided by a difference which

transcends all other differences, and then to forget, or lead the reader to forget, the vital character of this difference. The mental states must be treated and described throughout in such a way that no confusion between the two kinds of phenomena is caused to arise in the student's mind, and he must not be misled into supposing that a conscious process has been finally explained when its physical correlate has been indicated, or when the whole operation has been described in cloudy physiological language. It is, therefore, a grave violation of the most rudimentary maxims of philosophical procedure, and an unpardonable abuse of nomenclature, in a work of professedly scientific character, to call the neural concomitant the physical "side" or "aspect" of a sensation, and to speak of "waves of emotion" or the "glandular nature of the affections."[3]

6. Hand in hand with Physiology goes Pathology, the complementary science of organic disease; and the opportunities presented in the investigations connected with this branch of knowledge for the observation of mental activities in an isolated or abnormal condition will occasionally throw light on obscure questions. Somnambulism, illusions, hallucinations, and various forms of insanity exhibit particular mental functions under exceptional conditions, and not infrequently suggest or confirm explanations of special mental operations. Similarly, the study of those deprived of different senses

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[3] For some admirable remarks on the abuse of physiological terminology in describing mental states, cf. Dr. Martineau's *Essays Philosophical and Theological*, Vol. I. pp. 252—254.

may advance the scientific analysis of normal perception and the discovery of how much is due to the various faculties. (But here again judgment is required, and we must be on our guard against assigning too much weight to irregular and exceptional cases.) The emotional interest excited by abnormal occurrences may easily lead us to exaggerate their philosophical importance, and to forget that after all the proper subject-matter of our science is the *mens sana in corpore sano*. The reality of this danger becomes apparent when we find writers on Psychology founding their theories as to the nature of the soul, or of its cognitive operations, not on the observation of the activities of the normal healthy mind, but on dubious conjectures regarding some obscure ill-understood forms of mental aberration that appear perhaps once among a hundred thousand human beings.

We have here explicitly enumerated the various sources from which our science draws its materials, but, although it has only in recent times become customary thus to classify them in detail, they have been made use of by writers on the philosophy of the mind since the days of Plato and Aristotle. Some recent authors appear at times to believe that these methods of inductive inquiry are a result of modern discovery, and that surprising advances of an undefined character have been, or in the immediate future will be, effected by their means in our knowledge of the nature of the mind. A comparatively brief study, however, of Aristotle's great work on the soul, and of his supplementary treatises on special psychological questions, will show how fully he appreciated the value of these extended fields of information.[4]

The method pursued in Rational Psychology will be mainly deductive. From the truths established in the earlier part of our work as regards the life of the soul, we shall draw inferences as to its inner constitution; from the character of the activity we shall argue to the nature of the agent, from the degree of perfection in the effect we shall reason up to that of the cause.

The scope just assigned to Psychology is objected to by writers of widely different schools in this country, so it may be well to add a few supplementary remarks in defence of our position. Opponents we may divide into three classes. Some deny the possibility of a science either of Rational or Phenomenal Psychology. Others, admitting the existence of a genuine science of the phenomena of the mind, deny the possibility of any real knowledge regarding the nature or existence of the soul. Others, again, whilst allowing with this second class the value of Empirical Psychology, exclude from its treatment various questions, such as the freedom of the will, and the origin of intellectual ideas, on the ground that these are metaphysical or philosophical problems to be treated of elsewhere. As regards this last view, the divergence from us may be mainly one of method and classification. Provided these questions are satisfactorily discussed in some branch of Philosophy, it does not appear vital what department be selected. We may, however, point out that Psychology, the philosophy of the mind, seems to be under more distinct obligations to face these problems than any other science; and, in the second place, as we have already stated, any attempt at adequate treatment of mental phenomena will inevitably involve some particular philosophical view as to the nature of our faculties.

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[4] M. St. Hilaire has shown clearly how accurate were the views of the founder of the Peripatetic school on the use of the inductive methods in Psychology. Cf. *Psychologie d'Aristote*, pp. lii–lxv.

The only sufficient answer to writers of the second class—those who deny the possibility of a rational science of the soul—is to work out a systematized body of certain truths regarding its nature, and the relations subsisting between it and the body. This we will endeavour to accomplish in the Second Book of the present volume. That a work claiming to be a treatise on Psychology ought to make some such attempt seems so manifest that it is difficult to understand why the duty should be so uniformly ignored in English manuals. Locke's influence and the national distaste for metaphysical argument has had much to do with it, but probably the authority of the Scotch school has had still more. For it was to Reid and Stewart those most interested in a satisfactory exposition of the evidence bearing on the existence and character of the human soul naturally looked for a proper vindication of the subject. Unfortunately, idolatry of empirical fact and contempt for deductive reasoning reached a climax in the common-sense school. As a consequence, the worship of the Baconian method in its most exaggeratedly vicious form wrought that evil in the science of the mind which it would assuredly have effected, had it been as faithfully followed, in the study of external nature.[5] Thus we find that whilst in Germany and other Continental countries mental philosophy was approached with a view to the solution of the most interesting and important problems that can occupy the human spirit, British psychologists have been seeking to convert their science into a mere natural history of psychical phenomena. Any attempt at a comprehensive treatment of our mental activities is stigmatized as an illegitimate introduction of philosophical problems, and we have finally reached a stage in which even such a clearly psychological question as the freedom of the will is to be inexorably boycotted on the grounds of its connexion with the discredited science of metaphysics.

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[5] On the reaction against the pure Baconian doctrine of method in recent times, see Jevons' *Principles of Science*, Vol. II c. xxiii. He remarks that "its value may be estimated historically by the fact that it has not been followed by any of the great masters of science." (p 134)

As regards the third class of opponents—those who deny the possibility of a genuine science even of phenomenal psychology—since they attack the foundations on which our whole work rests, we will here state and answer briefly their chief arguments. The leading representatives of this view have been Comte in France, and Dr. Maudsley at home. Both teach that Psychology is merely a subsidiary department of Biology, and that it must be studied exclusively or mainly by objective methods. Dr. Maudsley states the case against Psychology at length in the earlier part of his work, *The Physiology of Mind*. But in this, as indeed in other philosophical questions, that vigorous writer does not appear to hold very clear or consistent opinions even throughout the course of the same volume.

1. He urges that Psychology, as a distinct independent science built up by introspection, is impossible, for introspection is itself impossible. "In order to observe its own action it is necessary that the mind pause from activity, yet it is the train of activity that is to be observed." (*The Physiology of Mind*, p. 17.)

This assertion we must meet by a direct denial, supported by an appeal to each man's inner experience. *First*, as regards the various modes of our sentient life, sensations, perceptions, appetites, pleasures and pains, our only difficulty is to understand how such a statement as that attention to them causes their immediate annihilation could ever have been penned. Life could be made happy without much difficulty if our disagreeable states and experiences would vanish when we turned to observe them; but unfortunately cold, hunger, thirst, and disease, the pains of muscular strain, and of toothache are not such obliging visitors. The activities of sight, hearing, taste, smell, and touch, can certainly be studied both in actual operation on their objects, and as reproduced in imagination. *Secondly*, that we can attend to and examine our higher forms of mental activity is equally certain. Emotions, desires, perceptions of relations, reasonings can be both concomitantly studied in their direct course[6] and afterwards recalled by memory. This is due equally in either case to the self-conscious power of the mind, and implies in us a higher order of mental activity than that involved in mere sentient affections. Our only proof of this, as well as of every other psychological fact, must be an appeal to each man's own consciousness.

2. Again, it is a maxim of "inductive philosophy that observation should begin with simple instances, ascent being made from them step by step through appropriate generalizations." (Maudsley, p. 19.) Moreover, science being universal, the psychologist should be able to contemplate a variety of specimens which exhibit the object of his investigations in its various stages of development. But introspection presents only a single subject for examination, and that a most rare and exceptional one, "the complex self-consciousness of an educated white man." Consequently, even were

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[6] Mr. Sully, who defends the introspective method, yet seems to hold that immediate concomitant consideration of *present* mental states is impossible, that it is only *past* states we can properly be said to observe, and that in fact "all introspection is retrospection" (*Illusions*, p. 190, and *Outlines of Psychology*, p 5.) This tenet is a necessary deduction from the sensationist theory of mental life, but the logical position for the disciple of that school is that assumed by Dr. Maudsley, and not the halting inconsistent doctrine of Mr Sully To the mind endowed with no activity essentially higher than that of the sensuous order, both *introspection and retrospection are equally impossible.* But that the human mind is capable of *concomitantly* observing its own states will become clear to any one who makes the attempt. It is actually the converse of Mr Sully's *dictum* which expresses the truth, 'All retrospection involves present introspection;" for, it is the *present* representation of the past state which is examined, and only *while actually present to the mind* can it be the subject of observation. But if we can attend to a present state which happens to be an image of a past state, surely there can be nothing to prevent attention to a state which is not such a representation. Consequently we can concomitantly study those mental processes of which we are conscious. In a word, as Mill urges against Comte, "Whatever we are directly aware of we can directly observe." (*Auguste Comte and Positivism*, p. 64.)

introspection possible, its deliverances would be deprived of that feature of *universality* essential to every genuine science. To this we may reply in the first place that, were a number of anatomists limited each to the study of a single human organism, they would still be able to frame a collection of results containing a substantial amount of agreement. Secondly, comparison of observations among psychologists, appeal to general experience, and the several objective methods we have described, and which have been in use from the very birth of Psychology, completely destroy the force of the supposed difficulty.

3. A kindred objection is urged against the necessary limitation of introspective observation to a single observer, "a witness whose evidence can be taken by no one but himself, and whose veracity, therefore, cannot be tested. . . . The observed and the observer are one, and the observer is not likely in such a case to be unbiassed by the feelings of the observed, and to conform rigidly to the rules of exact observation." (*id.*) The answer to the last objection will apply again in great part here. Further, (*a*) the psychologist, like the physiologist and every other scientific inquirer, must seek to lay aside prejudice and to approach his subject in an impartial spirit. (*b*) He must, like them, exercise care and diligence. And (*c*) he must check his results by comparison with those of other observers, and by the study of other minds through the various supplementary methods.

4. Dr. Maudsley also argues that the range of introspection is very limited. (*a*) "Consciousness which does not even tell us that we have a brain is certainly incompetent to give any account of the essential material conditions of our mental life." (p. 21.) (*b*) Mental life itself, too, is largely beyond the range of introspection. "It is a truth which cannot too distinctly be borne in mind, that consciousness is not co-extensive with mind." (p. 25.) As regards the first part of the difficulty it might, perhaps, be not unfairly retorted against the physiologist that the method of external observation on which his science is based can

tell us nothing of the mental conditions which profoundly influence many physical processes. Letting this pass, however, it is sufficient to recall to mind that conscious states and mental activities are real facts differing in kind from all physical events, in order to give them as good claim to form adequate matter for an independent science as physiology has to be separated from chemistry or mechanics. Finally, that the study of the physical conditions of conscious processes is a legitimate source of useful supplementary information has been, as we before urged, fully admitted from the time of Aristotle; but unfortunately, owing to the hitherto extremely backward condition of the science of Physiology in general, and especially in that department which deals with physical basis of mental life, it can afford very little reliable information of any importance.

5. Dr. Maudsley also argues that the illusions and hallucinations of the insane seem to them as clear and evident affirmations of consciousness, as do the introspective observations of the psychologist. Therefore the latter are untrustworthy. This objection is trivial. Insanity is, unhappily, a possible contingency among the investigators both of soul and body, but science will not be ultimately injured by such casualties.

6. Finally, it is urged, as a general proof of the worthlessness of Subjective Psychology, that "there is no agreement between those who have acquired the power of introspection." (*id.*) This objection is based on a confusion of two very distinct questions—the character of the mental states of which psychologists affirm that they are conscious, and the hypotheses or explanations which they advance to account for these states. As regards the former, that there is a very large amount of general agreement, any one who consults the psychological literature even of schools the most opposed will discover. On the other hand, wide and manifold divergence in the theories advanced to explain the origin and nature of mental life, the history of Philosophy since the great scholastic stream of thought was abandoned unequivocally demonstrates.

But that is not the fault of introspection any more than conflicting views as to the source of the sun's heat are a reflection on the trustworthiness of the telescope.

We have in the present chapter treated Dr. Maudsley's objections at such great length, not on account of any considerable importance we assign to his work, but because the discussion of his arguments helps to make clear to the student the actual difficulties and limitations of the Introspective Method.

Readings -On the opposition in nature between Psychology and the objective sciences, cf Dr Martineau's *Essays Philosophical and Theological*, "Cerebral Psychology," pp 245—253; also on *Method*, cf. M Charles, *Psychologie*, c. ii. §§ 3, 4 On the necessity of a consistent theory of Rational Psychology, even for a complete view of the physiological conditions of mental activity, cf. Professor Ladd's *Physiological Psychology*, pp. 585, 586

CHAPTER III.

CLASSIFICATION OF THE MENTAL FACULTIES.

THE subject-matter which Empirical Psychology investigates is Consciousness, but, as we have already remarked, the chief instrument by which our investigations are to be carried on is also Consciousness. The question then at once arises: What meaning or meanings are we to attach to this term? The word has been employed in a variety of significations, but for our purpose it will be necessary to distinguish and recognize only three.[1] In its widest sense Consciousness as opposed to unconsciousness denotes all modes of mental life. It comprises all cognitive, emotional, and appetitive states which are capable of being apprehended; it is, in fact, synonymous with the sum-total of our psychical existence. In its second sense it signifies the mind's direct, intuitive, or immediate knowledge either of its own operations, or of something other than itself acting upon it. This usage, which is supported by Sir W. Hamilton and some of those writers who maintain that we have in certain acts an immediate perception of a reality other than ourselves, makes Consciousness equivalent to immediate or direct knowledge. Understood in this way Consciousness signifies the energy of the cognitive act, and not the emotional or volitional acts as cognized. On the other hand, it is opposed to mediate and to reflex knowledge. In its third meaning the term is limited to that deliberately reflex operation by which the mind attends to its states and recognizes them *as its own.* Consciousness in this sense is no longer that common constituent of all subjective phenomena, whether intellectual, emotional, or appetitive, which makes them mental realities; nor yet is it the simultaneous notice which the mind concomitantly possesses of such acts. It is a supplementary introspective activity by which all our mental states are studied, and through its means what is implicitly apprehended in our direct consciousness is explicitly brought under review. In this signification the word is equivalent to *Self-consciousness,* and whenever there is danger of ambiguity, or whenever it is of importance to bring out the distinction, we will employ this latter term with its adjective *self-conscious.* Consciousness in the first meaning constitutes the object, in the third meaning the chief instrument of Empirical Psychology.

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[1] For a detailed account of the various meanings assigned to the term *consciousness* by philosophers, see the volume of the present series on *First Principles of Knowledge*, by John Rickaby, S J pp. 340—347.

Our primary duty in entering upon a scientific treatment of the facts of Consciousness is to effect a proper distribution of these phenomena. From very ancient times it has been customary to divide our mental states into a small number of general groups conceived to be the outcome of separate *faculties* or *powers*[2] of the mind. By a Faculty is meant the mind's capability of undergoing a particular kind of activity; thus, our sensations of colour are due to the Faculty of vision, and our recollections to the Faculty of memory. Such a method of classification is justified by the conspicuous differences found both in the quality of the several kinds of mental life, and in the manner in which the latter put the mind in relation with the object.[3] These activities assume either of two generically different forms. Every mental act or energy constitutes a relation between the mind or subject and the object or terminus of that act. Now this relation we find always to consist either in (*a*) the assumption by the soul of the object into itself after a psychical manner (*imagine intentionali*), or (*b*) the tendency of the soul towards or from the object as the latter is in itself. In the previous case the object of the state is presented or represented in the mind by a *cognitive* act, in the latter the mind is inclined[4] towards or from the object by an *appetitive* act; and the aptitude for the one class of operations is described as cognitive, percipient, apprehensive, and the like, while the root of the other has been styled the "striving," "orectic," "conative," or "affective" power. Under the faculty of cognition or knowledge are aggregated such operations as those of sense-perception, memory, imagination, judgment, and reasoning; under the affective or appetitive faculty are included desires, aversions, emotions, volitions, and the like.

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[2] The exact meanings of the terms, Faculty, Power, Capacity, Function, and the like, are not very accurately fixed in Psychology Power (*potentia*) may be conceived as either active or passive, that is either as a special causality of the mind or as its susceptibility for a particular species of affections or changes. Hamilton, following Leibnitz, would confine the term Faculty (*Facultas, Facilitas*) to the former meaning and Capacity to the latter. The terms *Act, Operation, Energy*, on the contrary, denote the present exertion of a power. The last of the three, however, is also used in a kindred sense to the previous terms, as the perfection or special ground in the agent from whence the activity proceeds The word *Function* may signify either the *actual exercise* or the *specific character* of a power. *Faculty, Power*, and *Capacity*, all properly signify *natural* abilities. Accordingly, G H. Lewes inverts the original and universally accepted meaning when he would make the term Faculty connote an acquired or artificially created aptitude. Faculty is *efficient* cause of Function, not *vice versa*, though the latter is both *final* and *formal* cause of the former. (Cf. Hamilton, *Metaph.* Lect. x.; Lewes, *A Study of Psychology*, p. 27)

[3] "The ground for the division of the mental faculties lies in the special nature of the psychical activities" (Cf. Jungmann, *Das Gemüth und das Gefühlsvermögen der neueren Psychologie*, p.12.) Scholastic philosophers taught that the faculties of the soul should be distinguished *per actus et objecta*, that is, according to the nature of each activity and the object towards which it is directed. The former principle, however, is the real causal ground for the distinction, the latter being valuable mainly as an indication or symptom which helps to exhibit more clearly diversities in the quality of the energy. "Potentia, secundum illud quod est potentia, ordinatur ad actum. Unde oportet rationem potentiæ accipi ex actu ad quem ordinatur; et per consequens oportet quod ratio potentiæ diversificetur, ut diversificatur ratio actus." (*Sum* i q 77. a 3. c.)

Besides this distribution of mental energies into those of a *Cognitional* and those of an *Appetitive* character, and running right through both classes, there is another division of still more vital importance from a philosophical stand-point; we mean that based on the distinction between the powers of a *higher*, *rational*, or *spiritual* grade, and those of the *lower, sensuous,* or *organic* order. Throughout the entire history of Philosophy it has been recognized that this difference is of profound significance. Thinkers upholding so multifarious and divergent philosophical creeds as Plato, Aristotle, the Schoolmen, Descartes, Leibnitz, Kant, and Hegel, all agree in looking on this difference of nature in our sensuous and intellectual activity as the central fact in the whole of Philosophy. Surely, then, every classification of our Faculties which does not give a prominent position to this vital distinction violates the first maxim of scientific procedure. Yet the received three-fold scheme which arranges our psychical activities into those of Feeling, Intellect, or Cognition, and Will, completely ignores this distinction, and bundles together imagination and sense-perception with the highest and most abstract exercises of thought. Accordingly, in addition to the division which separates appetency from cognition, and intersecting both these departments of mental life, we must draw a line marking off *sensuous* from *rational* or *spiritual* phenomena. These, however, must not be conceived as two co-ordinate classes of activities standing independently side by side; they are akin rather to superimposed strata. The superior faculty presupposes and supplements the action of the lower. To the sensuous order belong such operations as seeing, hearing, forming concrete pictures by the imagination, and conserving sensible experiences in the organic memory. Intellectual consciousness comprises the processes of forming universal concepts, judgments, and inferences, the recollection of rational truths, and the operation of reflecting on our own mental states. In the sphere of orectic activity or conation we find in the lower grade organic appetite and sensuous desires, in the higher spiritual desires and rational volition. Affections, emotions, and passions, pertain partly to one, partly to the other order. It is true of course that in actual concrete experience we cannot separate the superior from the inferior activity. The sensation in mature life is rarely given without some faint accompanying exercise of Intellect. But such dependence, or concomitance, does not identify the two energies.

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[4] There is indeed a certain sense in which the apprehensive faculties exhibit a *tendency* towards their appropriate objects This is implied in the scholastic term *intentionalis*. Still the distinction between such general responsive affinity and the special "striving" element of appetite remains evident

A further examination of our cognitive power of the sensuous order reveals to us certain lesser differences which afford us reason for a subdivision of this generic capability. We find that some faculties make us directly cognizant of material phenomena existing without the mind. These are the *External Senses.* Others have for their objects not such extra-mental realities, but conscious representations of the former. These faculties were called by the scholastic philosophers the *Internal Senses,* the chief of which are Imagination and Memory. The first forms images of absent objects, the second super-adds to such representations a conviction of their having been previously experienced. The principal subdivisions, therefore, of the lower grade of cognitive life are Imagination, Memory, and the External Senses. In the sphere of spiritual knowledge the various operations of conception, judgment, inference, and reflection, do not present sufficient divergency in nature to warrant a subdivision of Intellect into different faculties. These several processes are merely successive functions of the same power.

Besides the general partition of appetency, or affective consciousness, into rational and sensuous, no further subdivision seems obvious. The most important class of states which might appear to claim as their root another special property of the soul are the Feelings and Emotions. In so far, however, as they are not identical with the merely pleasurable or painful aspect of our cognitive energies, these phenomena may be traced to the affective or appetitive disposition of the mind taken in a wide sense. In our present chapter we can of course merely enunciate the principles upon which our system of classification is based; the justification of that scheme will be found in the detailed treatment of these various mental activities throughout the present book.

Although the vast majority of psychologists have followed the method of referring our psychical phenomena to a small number of general faculties, yet there has been a good deal of disagreement regarding the scheme of powers to be assumed as ultimate. Aristotle, rejecting Plato's allotment of three really distinct souls to man, teaches that the human being is possessed of one vital principle which informs and animates the body. This soul (ψυχή) is endowed with five distinct genera of faculties: "Vegetative Power (τὸ θρεπτικόν), on which the maintenance of the corporeal organism depends; the Appetitive Faculty (τὸ ὀρεκτικόν), which is exerted in striving after what is good and agreeable, and in repelling what is disagreeable (δίωξις καὶ φυγή); the faculty of Sensuous Perception (τὸ αἰσθητικόν), by which the objects perceptible by sense are represented in our cognition, the Locomotive Faculty (τὸ κινητικόν), by which we are enabled to move the body and its members, and make use of them for external action; and lastly, the Reason (τὸ διανοητικόν). The four faculties first-named belong to brutes, as well as to man. Reason, on the other hand, is the characteristic which distinguishes man from the brutes."[5]

St. Thomas follows Aristotle,[6] but lays greater stress than the Greek philosopher on the distinction between mere sensitive appetite (ὄρεξις ἄλογος), for which we are not responsible, and rational appetite or will[7] Leaving out of account, then, the physiological or extra mental powers of the soul, we have cognitive capabilities of the sensuous order; intellect, or the faculty of rational knowledge; and the two kinds of appetite. This is the scheme which we have ourselves adopted. With St. Thomas, as with us, emotional states are either complex products made up of cognitive and appetitive activities, or mere aspects of such energies.

Among modern writers, Reid and Stewart put forward the distribution into *Intellectual* and *Active* Powers, based on the antithesis maintained by the peripatetics between the cognitive and appetitive faculties. In doing so, however, they overlooked the equally important principle of division into Sensuous and Rational aptitudes, all forms of cognition being alike styled *intellectual*. In addition to this deficiency, their classification errs by opposing *intellectual* to *active*, whereas the higher order of cognitive activity is as essentially active as many modes of appetency.

Hamilton adopts the three-fold distribution of the facts of consciousness into phenomena of *Knowledge*, of *Feeling*, and of *Conation*. This classification, first propounded last century by Tetens, a German philosopher, was popularized by Kant, and probably enjoys most general favour among psychologists of the present day. It bases its claims on the assumption of three ultimate radically distinct modes of conscious activity to one or other of which all forms of mental life are reducible, while none of these, it is asserted, can be identified with, or resolved into, either of the other two. Consciousness assures me, it is urged, that I am capable of Knowledge, of seeing, hearing, imagining, reasoning, and the rest. It also testifies to the fact that I may be drawn towards or repelled from objects, in other words, that I am endowed with the faculty of Desire. Finally, it reveals to me that I experience pleasure and pain, and that I am subject to various emotions, such as curiosity, pride, anger, and admiration, which are not acts of cognition, nor yet of desire. Accordingly there must be postulated as the basis of this last class of states a third capability in the mind, the Faculty of Feeling. Our objection to this scheme is that it sins both by excess and defect. On the one hand it ignores the fundamental distinction between the lower and higher grades of mental life, and on the other hand it asserts without sufficient grounds the existence of a separate third faculty. Hamilton, like most Kantians, was at times fully aware of the divergence in kind which marks off rational from sensuous cognition. Yet this all-important difference receives no real recognition in his classification, whilst the phenomena of feeling, for which he demands a third compartment, are reducible either to aspects of cognitive energies or modes of appetency.

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[5] Stöckl's *Handbook of the History of Philosophy* (Translated by Thomas Finlay, S.J.), p. 119. This work contains an excellent epitome of Aristotle's Philosophy.

[6] Cf *Sum* i. q. 78 a 1. c [7] *Sum*. i. q. 80 a 2.

Dr. Bain arranges the most general groups of mental facts thus: (1) *Feeling*, which includes, but is not exhausted by our pleasures and pains. (2) *Will*, or *Volition*, which "comprises all the actions of human beings in so far as impelled or guided by feelings." (3) "*Thought*, *Intellect*, *Intelligence*, or *Cognition*, which includes the powers known as Perception, Memory, Conception, Abstraction, Reason, Judgment, and Imagination." This general faculty he analyzes later on into three "facts," or "functions," called "Discrimination, or Consciousness of Difference, Similarity, or

Consciousness of Agreement, and Retentiveness, or Memory."[8] This tripartite scheme is open to the same difficulties as the previous one, but the treatment of Intellect by Dr. Bain is far more erroneous than that by Hamilton. The defective character of both systems, however, can be satisfactorily shown only by the establishment of our own doctrine in the course of the present work.

Mr. Herbert Spencer rejects the triple division of mental phenomena for a two-fold one: (1) *Feelings*, and (2) *Relations between Feelings* or *Cognitions.* In his view volition is merely a complex form of feeling, and even the "relations" between feelings he speaks of as being merely special feelings. As a psychological classification this division has been very justly, but not consistently, rejected by Dr. Bain, on the ground that what is required is not a scheme of mental products, but of the different kinds of powers or forces of the mind by which such products are attained.[9] Looked at, however, as an ultimate analysis of our mental operations, it must be condemned as proceeding from a false conception of mental life similar to that of Dr. Bain.

But difference of view on the subject of the mental powers has not been confined to the problem of classification. A vigorous crusade has been preached by several psychologists during the present century against the "faculty hypothesis" in any form. The movement was initiated in Germany by Herbart in opposition to Kant, and has been sustained there by Drobisch, Beneke, Schleiermacher, Vorländer, and others. In France, MM. Taine, Ribot, and positivists generally, have followed in the same direction, and a vast amount of wit and rhetoric has been expended in the demolition of these "metaphysical phantoms." We believe, nevertheless, that, once the reality of the mind as a permanent indivisible energy is admitted, the assumption of faculties when properly explained is unassailable. A mental faculty or power is not of the nature of a particular part of the soul, or of a member different from it as a limb is distinct from the rest of the body It is not an independent reality, a separate agent, which originates conscious states out of itself apart from the mind. But neither is it merely a group of conscious states of a particular kind. It is simply a special mode through which the mind itself acts. "It is admitted by all that a faculty is not a force distinct from and independent of the essence of the soul, but it is the soul itself, which operates in and through the faculty."[10] A faculty is, in fact, *the proximate ground of some special form of activity of which the mind is capable.* That we are justified in attributing to the soul faculties in this sense is abundantly clear. Careful use of our power of introspection reveals to us a number of modes of psychical energy radically distinct from each other, and incapable of further analysis. To see, to hear, to remember, to desire, are essentially different kinds of consciousness, though all proceed from the same source. Sometimes one is in action, sometimes another, but no one of them ever exhausts the total energy of the mind. They are partial utterances of the same indivisible subject. But this is equivalent to the establishment of certain distinct aptitudes in the mind.[11]

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[8] *Mental Science*, p. 2. The apparent agreement in classification between Hamilton and Dr. Bain, even where it holds, is superficial Dr Bain, Mr. Sully, and all empiricists, since they teach that the mind is nothing more than the sum of our conscious states, mean by a faculty merely a group of like mental acts, while Hamilton, who believes that the mind is a real indivisible energy, conceives the different faculties, not, indeed, as independent agents, but as special forms of causality or susceptibility in the soul.

[9] *The Senses and Intellect*, p 640. (2nd Edit.)

In England the chief psychologist during the early part of this century who attacked the doctrine of mental faculties, was Brown. As the right view was sufficiently vindicated then by Hamilton,[12] we need not return to refute the former writer or Bailey, who added little of any value on the same side. Recently, however, Mr. Sully reasserts the old exploded charge, so a word in answer to this author may be useful. After premising that the discussion of the ultimate nature of the "so-called faculties" belongs to Rational Psychology, and so lies outside of his sphere, he continues: "The hypothesis of faculties can, however, be criticized from the point of view of Empirical Psychology in so far as it succeeds or does not succeed in giving a clear account of the phenomena. Looked at in this way, it must be regarded as productive of much error in Psychology. It has led to the false supposition that mental activity, *instead of being one and the same throughout its manifold phases is a juxtaposition of totally distinct activities answering to a bundle of detached powers, somehow standing side by side, and exerting no influence on one another.* Sometimes this absolute separation of the parts of mind has gone so far as to personify the several faculties as though they were distinct entities. This has been especially the case with the faculty or power of willing."[13]

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[10] Cf *Die Psychologie*, von Dr. Constantin Gutberlet, p 4.

[11] "The proposition, 'our soul possesses different faculties,' means nothing else than 'our soul is a substance which as active principle is capable of exerting different species of energies.'" "If the soul produces within itself acts of perception, then must it also be endowed with a property corresponding to this effect, and this property must be something actual, objectively real in it: otherwise a stone may at times be just as capable of percipient acts To deny that property whilst we admit its manifestations, is to assert that the faculty of perception is nothing else than the sum of its acts, and is equivalent to postulating accidents without a substance, effects without a cause, and to discoursing of phenomena and operations when the subject, the agent, is abolished." (*Das Gemüth und das Gefühlsvermögen der neueren Psychologie*, von Jungmann, p 11.)

One or two observations may be urged in reply. (1) Mr. Sully, in asserting that all mental activity is one and the same, cannot seriously intend to maintain that the conscious activity known as *seeing* is identical with that of *hearing*, or that *cognition* is not different in nature from *desire*. But if he allows these energies to be radically distinct modes of consciousness under the vague saving clause of "manifold phases," then all that is needed for the establishment of a variety of mental aptitudes in the sense for which we contend is admitted. (2) The description of the theory as involving the absurd view that the faculties form "a juxta-position of totally distinct activities answering to a bundle of detached powers, somehow standing side by side and exerting no influence on each other," is a strange travesty of the doctrine, and hardly to be expected in an author of Mr. Sully's wide reading after Hamilton's elaborate confutation of Brown. Indeed, so far have the supporters of the doctrine been from setting "the faculties side by side exerting no influence on one another," that a great part of the modern attack is based on quite an opposite representation of their view. They are charged in Germany with making the mind the theatre of a perpetual civil war among the faculties; and Vorländer compared the world of consciousness in their system to the condition of the Roman Germanic Empire, when the vassals (the faculties) usurped the functions of the regent (the soul), and were perpetually intriguing and struggling with each other, whilst Schleiermacher styled the theory a "romance replete with public outrages and secret intrigues." If the faculties are to be annihilated on the charge of being everlastingly involved in mutual conflict, it is rather hard that they should be condemned at the same time for exerting no influence on each other. The truth is, no such ridiculous view regarding the nature of our mental powers has ever been held by any psychologist of repute, but in talking of the obvious and indisputable fact that our intellectual operations, emotions, and volitions, interfere with and condition each other, philosophers, like other folk, have been compelled by the exigencies of language to speak as if the faculties were endowed with a certain independent autonomy of their own. They have, however, of course, from the days of St. Augustine, and long before, been aware that it is the one indivisible soul which remembers, understands, and wills.[14] (3) Even regarding the activities of sense and intellect, which we hold, and shall prove to be essentially different, the assertion of an imagined real independence is untrue. The second faculty pre-supposes as a necessary condition of its action the exercise of the first, and is dependent on it for its operation, whilst both are merely diverse energies of the same simple soul. (4) Finally, the Will is not an independent member, an entity separate from the mind; it is merely that perfection of the Ego which constitutes it capable of that special form of energizing called willing; it is the soul itself which wills.

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[12] *Metaph.* lxx.

[13] *Outlines*, p. 26. Mr. Sully is undoubtedly right when he says that discussion of the nature of the faculties pertains to *Rational Psychology* But this only shows the essentially abortive character of a purely *Phenomenal Psychology*

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[14] "Hæc tria, memoria, intelligentia, voluntas, quoniam non sunt tres vitæ, sed una vita; nec tres mentes, sed una mens; consequenter utique nec tres substantiæ sunt, sed una substantia." (Cf. St. Aug. *De Trinitate*, Lib. X. c. xi)

There is, however, a tenet implied in our system irreconcilably opposed to the phenomenalist view of Mr. Sully and all other sensationist writers. We hold as a fundamental all-important truth that there exists *one real indivisible agent* called the *Mind*, which is something more than the series of events known as conscious states. And we would venture to ask which party is really guilty of the charge of disintegration. Who are the true separatists on the question? Is it the school which maintaining the existence of one indivisible mind recognize in it a number of capabilities for diverse forms of action? Or is it the sect which teaches that the mind is nothing but an aggregate, a procession, of separate states connected by no real bond? The transition from even an oligarchy of faculties to a headless democracy of conscious atoms, is scarcely an advance towards the unity of the Ego.

There remains another question related to our present subject: Which is to be conceived as the most fundamental of our activities? To answer this we must recall our double division of faculties, on the one hand, into sensuous and rational, and on the other into cognitive and appetitive. Now of the two former kinds of mental life that of sense is primary. The faculty of sense manifests itself at the earliest age, it extends throughout the entire animal kingdom, and its exercise is always pre-supposed in order to furnish materials to be elaborated by the rational powers in man. Intellect, on the other hand, is something superadded to sense. In all its forms it requires as the condition of its operation the previous excitation of the lower powers, it manifests itself later in life than sense, and it is confined to the human species. Turning now to the other division: Whether is cognition or appetite the more primordial? But little reflection is required, we think, to make it clear that knowledge is naturally prior to volition. We desire because we perceive or imagine the object of our desire to be good. We are drawn or repelled by the pleasurable or painful character of the cognitive act. A sensation of colour, sound, or contact, viewed in its proper character, is a rudimentary act of apprehension, and it may awaken a striving either for its continuance or for its cessation; an intellectual judgment may similarly give rise to a volition. It is true that some desires manifest themselves in an obscure way without any antecedent cognitive representation that we can clearly realize. This is especially the case with the cravings of physical appetite, such as hunger and thirst. Purely organic states which give rise to yearnings of this kind, however, are rather of the nature of physiological needs than properly psychical desires; and in proportion as they emerge into the strata of mental acts the cognitive element comes into clearer consciousness. We may, therefore, lay it down as a general truth that appetite is subsequent to knowledge and dependent on it. These faculties are thus to be viewed, not so much in the light of two co-ordinate powers standing side by side, as in that of two properties of the soul, the exertion of one of which bears to that of the other the relation of antecedent to consequent.

What position as regards the two powers just mentioned does the so-called third *Faculty of Feeling* hold in our system? Feelings understood as a group of emotional states are not, we have already remarked, the offspring of a third ultimate distinct energy, but complex products resulting from the action of both cognitive and appetitive faculties. Feeling viewed simply as pleasure and pain, and such is the only sense in which this form of consciousness has even an apparent claim to the position of a separate faculty, is merely an *aspect* of our cognitive and appetitive energies. It exhibits itself as a positive or negative colouring, which marks the operations of these powers. As a quality of knowledge it must be conceived to be dependent on cognitive activity rather than *vice versa*. But, inasmuch as it is through this quality that cognition determines the character of the consequent appetite, feeling, or rather the cognition as pleasurably or painfully coloured, stands in the relation of cause and effect to the subsequent appetite. Since, however, the activity of desire may also be more or less agreeable, and since it may result in satisfaction or discontent, feeling here again stands in the relation of sequela to volitional energy. Feeling thus considered as a quality of conscious acts is of the nature of a variable phase or tone of both cognitive and appetitive activity, but when in the position of a dependent accident of the former it may be a causal condition of the latter.[15]

Readings.—Classification of the Faculties, cf. *Sum.* i. q. 78 The ablest and most exhaustive treatment of the whole subject with which we are acquainted is Jungmann's *Das Gemuth und das Gefuhlsvermögen der neueren Psychologie* (Freiburg, 1885.) See especially §§ 1—5 and 83—100. On the nature of Faculties, cf. Suarez, *De Anima*, Lib II. c. i. and *Metaph. Disp.* 18, sect 3; Gutberlet, *Die Psychologie*, pp. 3—8; Martineau, *Types of Ethical Theories*, Vol. II. pp. 10—13.

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[15] This account of the relations subsisting between cognition, feeling, and appetency, which we believe to represent the view of St Thomas, embraces the elements of truth possessed by both Hamilton and Dr. Bain in the controversy on the subject Hamilton is right in holding that the cognitive or apprehensive form of consciousness is the most fundamental, and that feeling, *i e.*, pleasure or pain, is dependent on the former, whilst desire is a still later result. There is thus some foundation for his assertion that consciousness is conceivable as cognitive energy void of pleasure and pain, whilst the latter cannot be conceived unless as a quality of the former. On the other hand, through not recognizing the difference between sensuous and intellectual cognition, he falls into the error of supposing that the latter, and sometimes even that peculiarly reflex form of it which is known as self-consciousness, is necessarily prior to sensuous pleasure and pain. Dr. Bain maintains *feeling* to be the primordial element, but under this term includes both the pleasurable and painful *aspects* of conscious states, and certain *sensations*. He is right in holding sensuous life in general to be prior to rational life, but wrong in making feeling under the form of pleasure or pain antecedent to or co-ordinate with cognitive sensibility.

PSYCHOLOGY.

BOOK I.

EMPIRICAL OR PHENOMENAL PSYCHOLOGY.

PART I.—SENSUOUS LIFE.

CHAPTER IV.

SENSATION.

THE most fundamental and primitive form of conscious life is *sensation.* Such being the case, sensation cannot, properly speaking, be defined. It may, however, be described as an elementary psychical state aroused in the animated organism by some exciting cause. A sensation is thus a modification, not of the mind alone, nor of the body alone, but of the living being composed of mind and body. The power of experiencing sensations in general is termed *sensibility,* while the capacity of the living being for a particular species of sensations is called a *sense.* The special portions of the organism endowed with the property of reacting to appropriate stimuli so as to evoke these particular groups of sensations are called *sense-organs*. A being capable of sensations is described as *sentient*, or *sensitive*; and the term *sensuous* may be applied to all those mental[1] states which are acts, not of the soul alone, but of the animated organism.

The process by which a sensation comes into existence usually comprises three stages. First, there is an action of the physical world external to the organism. This action, transmitted in some form of motion to the sense-organ, gives rise there to the second stage. This consists of a molecular disturbance in the substance of the nerves which is propagated to the brain. Thereupon, a completely new phenomenon, the conscious sensation, is awakened. The nature of the external agencies which arouse sensation is the subject-matter of the science of Physics; the character of the process within the organism which precedes or accompanies the psychical state is studied by the science of Physiology; while the investigation of the conscious operation itself is the function of Psychology. In describing the action of the senses later on, we will say a brief word on the physical and physiological conditions of each in particular, but a few very general remarks on the nature of the physical basis of conscious life as a whole may be suitable here.

The bodily machinery of mental states consists of the nervous system. This is composed of two parts, the central mass, and the branches which ramify throughout the body. The central mass, called the cerebro-spinal axis, is made up of the brain and the spinal cord passing from it down through the backbone. The brain consists of a soft, pulpy, convoluted substance of mixed grey and white matter, the former being constituted of minute cells or vesicles, the latter of fibres or threads. The spinal cord consists of a column of the white, fibrous matter, enclosing a core of the grey, cellular substance. From the spinal cord, between every two vertebræ, there issue forth two pairs of nerves. The nerves proceeding from the front of the spinal column are called the *anterior*, *efferent*, or *motor* nerves, inasmuch as they are the channels employed in the transmission of impulses outwards, and are thus the instruments of muscular movement. The nerves coming from the back of the spine are called the *afferent*, or *sensory* nerves, because by their means the molecular movements which give rise to sensations, are conveyed inwards from the various organs of the body. In the several sense-organs, these nerves appear arranged and modified in various ways, so as to respond to their appropriate excitants. It is not agreed among physiologists how far specialization in the structure of the different parts of the nervous mechanism is required in order to respond to the different forms of stimuli.

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[1] We employ the word *mental*, as equivalent to *conscious*. In this sense, it is applicable to all states of consciousness, whether cognitive or appetitive, sensuous or supra-sensuous. The usage of those scholastic writers who would make this adjective synonymous with *intellectual*, seems to us inconveniently narrow, and too much opposed to common language.

The most prominent feature by which sensations of the same or different senses are distinguished from each other, is that of *quality*. The sensations of sound are thus of a generically different quality from those of smell, while the feeling of blue is of a specifically distinct quality from that of red. Besides differing in quality, sensations may also vary in *intensity*, and *duration*. By the intensity of a sensation is understood its vividness, its greater or less strength in consciousness. The degree of intensity depends partly on the force of the objective stimulus, and partly on the vigour of attention. The duration of a sensation means obviously the length of time during which it persists in existence. This is determined mainly by the continuance of the stimulus. The duration of the sensation is not, however, always either equal to or simultaneous with that of the stimulus. A certain brief interval is always required between the irritation of the organ and the birth of the mental state, and the latter continues for a shorter or longer period after the cessation of the former. A certain lapse of time is consequently necessary between two successive excitations in order that there be two distinct sensations. Thus, in the case of sight, if the action of the stimulus be repeated oftener than five times in the second, it ceases to be apprehended as a series of separate events, and instead, one continuous sensation is aroused. The ear can distinguish as many as fifteen successive vibrations in the second, while the recuperative power of taste and smell, after each excitation, is far lower than that of sight. It is erroneous, however, to speak of the continuous sensation produced by these repeated excitations as a *compound sensation* arising from the combination of a number of simple sensations. It is only by an inaccurate metaphor that unextended mental states can be described as blending, or mixing, after the manner of liquids or gases; and there is, moreover, nothing to show that the supposed constituent elementary states ever came into existence. The simplest and briefest sensation has for its physical condition a neural process, divisible into parts; it would, however, be absurd to speak of it as composite, on this account. In the case of a continuous sensation of sound, or colour, arising from an intermittent stimulus, the physical and physiological conditions may be more complicated, but the mental state felt to be simple must be described by the psychologist as such.[2]

Somewhat similarly, in the case of touch, a certain interval of space, variable in different portions of the body, must exist between the parts of the organism affected by two stimuli, in order that these may be felt as distinct. The capacity of sensation for variation in intensity and duration has suggested in recent times the attempt to secure exact quantitative measurement of mental phenomena, and the title of *Psychophysics* has been allotted to this line of investigation.

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[2] The "objective" analysis of mental states by Mr. Spencer and M Taine is thus illusory. If states which consciousness the only possible witness concerning such facts—declares to be simple, are to be reduced to units of the character of nervous shocks, because the action of the physical agent is of a composite character, then we certainly cannot stop at the feeling of a "shock," as the unit. The briefest and simplest sensation of the colour of violet, which involves between six and seven hundred billions of vibrations in the second, must be resolved into an incredible number of *unconscious* units of consciousness, for the existence of none of which, of course, is there any evidence A knowledge of the physical conditions of mental states is valuable, but conscious elements affirmed to be simple by introspection, must be accepted as such by the psychologist. Cf. Dr. Mivart, *Nature and Thought* (2nd Edit.), pp 89—92

The features hitherto described, including even pleasantness or painfulness, are merely aspects or accidental properties of sensation. Its essential nature lies in its cognitive quality. The intensity, duration, and emotional tone of a sensation, exist only as they are known. They are of a variable and adjectival nature. They determine and modify, but they do not constitute the essence of a sensation. A sensation is in itself an elementary mode of consciousness of a cognitional character. Knowledge, however, may have reference either to extra-organic, or to intra-organic objects and events. We may be cognizant of something other than ourselves, or of the states of our own sentient organism, and different senses stand higher and lower in regard to these different fields. In sight, in the muscular sense,[3] and in the tactual sensations of pressure, knowledge of external reality is the prominent feature; in hearing, taste, smell, and the organic feelings, the sensation is a cognition, which originally bore a subjective character. In the case of these latter faculties, the pleasurable or painful aspects of sensations frequently rise to great importance; and on some occasions the sensation becomes mainly a cognition of pain, or, more rarely, of pleasure.

This distinction between the objective and subjective import of the sentient act has caused the two terms, *sensation* and *perception*, to be contrasted with each other. *Sensation*, as thus opposed to perception, is variously defined to be, the modification of the sense viewed merely as a *subjective* state, the consciousness of an affection of the organism, or the feeling of pleasure or pain awakened by the stimulus. *Perception*[4] is described as the *objective* knowledge, the apprehension of *external reality* given in the sentient act; or, as the act by which we localize or project a sensation or cluster of sensations, actual and possible, into the external world.

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[3] This term is used to denote the power of experiencing sensations of resistance or impeded energy and movement. Its nature will be discussed in the next chapter

This separation of the two terms is convenient for bringing out the difference between the developed form of cognition exhibited by sense in mature life, and the vague kind of apprehension afforded in the earlier acts of the sentient powers: but the distinction is one of degree, not of kind. In the most rudimentary sensations of pressure and of colour, there is a cognition of something other than self, and though rude and indefinite in character, this is still an act of objective knowledge. Consequently, there is already here perception, in the modern signification of the term. This vague act receives exacter definition as we advance, and in later years the quality perceived by the sense is cognized as situated in a determinate place, and accompanied by other qualities. Such further determinations, are, however, the result of other sensations, and if no one of them revealed external reality to us, the aggregate could not do so. This subject will be better understood when we come to treat of the nature of Perception. Some writers define *Sensation* as the feeling of pleasure or pain attached to an act of sensuous apprehension, but very few, if any, adhere consistently to this interpretation. When, for instance, the sensations of the different senses are spoken of, and their various properties, quality, intensity, tone, duration, and the rest, are described by psychologists, sensation does not mean the pleasurable or painful aspect of certain mental states, but these states themselves. It is only when used in this narrow signification, as a feeling of pleasure or pain, that sensation and perception can be held within certain limits to stand in an inverse relation to each other.[5]

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[4] The word *perception*, or rather, the Latin verb *percipere*, was originally used in a wide sense to denote any form of apprehension or comprehension, whether sensuous or intellectual Later on, it became limited to sensuous apprehension, and was employed by Reid, in contrast to the term *sensation*, to designate the *sensuous cognition of something as external to us* *Sensation* originally meant the process of sensuous apprehension considered as revealing to us both itself as a subjective state, and the objective quality to which it corresponded. By Reid it was confined to the former signification, and thus explained: "The agreeable odour (of a rose) which I feel, considered by itself without relation to any external object, is merely a *sensation*. Perception has always an external object, and the object in this case is that quality in the rose which I discern by the sense of smell." The later sensationalists (*e.g.* Mr. Sully, *Outlines*, c vi.), inverting the doctrine of Reid and Hamilton, that perception is the apprehension of a *real* external quality, describe this act as an ejection or projection out of the mind of a sensation carrying with it a cluster of faint representations of other past sensations, the whole being "solidified" or "integrated" in the form of an object. On the terms sensation and perception, cf. Hamilton, *On Reid*, Note D. also *Metaph*. Vol. II. 93—97.

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[5] Hamilton explains Reid to mean by *perception*, "the objective knowledge we have of an external reality through the senses; by *sensation*, the subjective feeling of pleasure or pain with which the organic operation of sense is accompanied," and adopting this view,

The modification of a sensuous faculty is thus, in its simplest form, of a percipient character, and in the case of vision and touch, the sensation from the beginning possesses a certain objective reference. A sensation viewed in this way as a modification by which the mind is made cognizant of a material quality of an object, was called by the schoolmen a *species sensibilis*.

The doctrine of *species* has been attacked and ridiculed by many modern writers, and this in a manner which shows how widespread and profound, even amongst students of philosophy, is the ignorance regarding the most familiar terms of scholastic writers. Democritus and Epicurus formerly taught that we know objects by means of minute representative images which stream off from their surface, and pass into our soul through the channels of the senses. The Latin word *species*, meaning an image, was used by their Roman disciples to signify these volatile images. Aristotle and his followers, however, rejected the theory of

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he enunciated the law that *above a certain point the stronger the sensation the weaker the perception, and vice versa*. He seeks to establish this general opposition by a comparison (*a*) of the several senses, and (*b*) of different impressions within the same sense Confined to sensuous apprehension, the formula seems to be approximately true, although it is pain rather than pleasure which interferes with cognition As a generalization applicable to higher intellectual forms of cognitive activity, it does not hold Consciousness is not, as Hamilton seems to imply, a fixed quantity where increase in cognition involves decrease in feeling. This is in direct opposition to the doctrine adopted by Hamilton himself from Aristotle, that pleasure is a reflex of mental energy. In the view of the Greek philosopher, keen and intense pleasure accompanies vigorous intellectual activity, and the greatest and best pleasure is the necessary *sequela* of the exercise of the highest form of cognitive energy. (Cf Hamilton, *Metaph* pp 93—105.)

a physical efflux of *species*, and taught instead, that objects effected modifications in the mind by acting on the sense-organs through motions in the intervening media. The term *species* was later on employed to denote these modifications by which the mind is made to apprehend the exterior object. In this sense, which is that accepted by the greatest philosophers of the middle ages, such as St. Thomas, Albertus Magnus, and Scotus, the *species* is not an entity which has immigrated into the mind from the object, but a modification or disposition awakened in the mind by the action of the object. It is, in fact, the apprehensive act by which the mind responds to the stimulus.

The adjective *intentionalis* was attached to the term *species* to signify that the apprehensive act, though truly reflecting the external object, does not resemble it in *nature*. [The mental modification was held to be merely a psychical or spiritual expression of the material thing. Resemblance is of many kinds.] A photograph, or a statue, is, in a certain sense, utterly unlike a man formed of flesh and blood; the blind man's representation of a circle by the sense of touch, is very different from the visual image of the same figure; the intellectual ideas aroused by the words, "equality," "colour," "square," must be widely divergent from both the image and the reality to which they correspond. Yet, in spite of these unlikenesses, there exist genuine relations of similarity between such pairs of things as those just mentioned. The scholastic writers adopting this view, taught that our knowledge, although in itself, as a mental activity, opposed in *nature* to material reality, does, nevertheless, truly *mirror* the surrounding world. They held that though neither the tactual nor the visual image resembles in nature the brass circular substance presented to the sense, yet both accurately reflect and are truly like the external reality; and they called these mental expressions of the object *species intentionales*.

Furthermore, as they held the mind to be capable of two essentially distinct kinds of cognition, sensuous and intellectual, they termed the apprehensive acts of the former *species sensibiles*, of the latter *species intelligibiles vel intellectuales*. In the genesis of the *species* they distinguished two moments or stages. The modification of the sensuous faculty, viewed as an impression wrought in the mind by the action of the object, was named the *species impressa*. The reaction of the mind as an act of cognitive consciousness was styled the *species expressa*. The latter term designated the sensation considered as a completed and perfect act of consciousness elicited by the soul; the former indicated the earlier stage of the process, the alteration in the condition of the mind looked at as an effect of the action of the object.[6] The *species* proper, however, whether *impressa* or *expressa*, was an affection of the mind. The term *species corporalis* was sometimes used to signify the physical impression or movement produced by the object in the organism, but the strict meaning of the word *species*, and the only meaning of the term *species intentionalis*, was the mental state. Thus, neither the image of the object depicted on the retina of the eye, nor the nervous disturbance propagated thence to the brain, but the *conscious act* finally awakened, was held to be the true *species* or *species intentionalis*.

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[6] The existence of the *species impressa* is proved by the fact of memory. That the alteration or modification wrought in the soul by the act of perception must persist in some form, is established by the facility of representation and recognition.

Rejecting the interpretation of the *species* as roving images, together with every theory which conceives them as representations mediating between the object and the cognitive faculty,[7] the thought embodied in the doctrine is thoroughly sound. Unless we are prepared to maintain that our soul is born with all its future knowledge ready made, and wrapped up in innate ideas, we must allow that the physical world does somehow or other act on our faculties, and that our perceptions are due to the influence of material objects upon us. The mind does not determine all its own modifications, and the strongest volition is unable to make the deaf man hear a word, or the blind man see a colour.

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[7] The complete ignorance of modern philosophical writers regarding the teaching of the scholastic thinkers may be imagined, when even Hamilton confuses the maintenance of *species* with the doctrine of *mediate* perception, and so looks on St. Thomas and the great body of the schoolmen as hypothetical realists. (Cf *On Reid*, Note M. pp. 852—857.) The familiar distinction of *principia quibus*, and *principia ex quibus*, rightly comprehended, would have saved him here. The *species* are not *intermediate* representations *from which* the mind infers the object, but psychical modifications *by which* the mind itself is likened, or conformed, to the object, and thus determined to immediately cognize it. For an effective refutation of the charge of representationism against St. Thomas and the leading scholastics, based on the doctrine of *species*, cf. Sanseverino, *Dynamilogia*, pp. 390—400.

But this is to admit that the faculty is stirred into conscious life and informed by dispositions wrought in it by the perceived object. Further, unless we are ready to adopt the position of absolute scepticism, we must hold that knowledge does somehow correspond to reality. There is not a merely arbitrary connexion between the object and its apprehension. The latter is a true, though psychical expression of the former. This subject will be more fully dealt with hereafter, but we have said enough to justify the doctrine of *species intentionales*, as understood by St. Thomas, and the leading philosophers of the school. The modern writer may prefer to describe the perception of a triangle as a modification of the mind mirroring or reflecting in terms of consciousness the external object, but this is only in other phraseology the old doctrine.

PSYCHOPHYSICS.—By observing and comparing sensations varying in intensity, Weber, and later on, Fechner, discovered that the quantity of increment necessary to be added to a given stimulus in order to produce a sensation consciously distinguishable from that of the original stimulus, varies according to the force of that original stimulus. Thus, a weight of one ounce added to that of three, the light thrown upon a screen by one candle, in addition to ten, the addition of a single voice to a musical trio, all produce consciously increased sensations, yet, if we added but a single unit to a weight of ten ounces, to a light of five hundred candles, or to a chorus of twenty voices, the new sensation cannot be distinguished from the old. An elaborate series of experiments led to the conclusion that the increment required to be added to a given excitant in order to produce a sensation discriminable from the former mental state bears a constant ratio to the original stimulus, though this ratio differs in the several senses. This generalization has been called *Weber's* or *Fechner's Law.* It has been otherwise formulated thus, *To increase the intensity of a sensation in arithmetical progression, the stimulus must be increased in geometrical progression*, or, *the sensation increases as the logarithm of the stimulus.* Thus, if a pressure of four ounces can be barely discriminated from that of three, the sensation caused by twelve ounces will be similarly just distinguishable from that of nine. It was further found that the stimulus must reach a certain minimum degree of force in order that any sensation can be felt. This minimum force measures the *absolute sensibility* of the organ, or part of the organ in question.

The chief statistical results which the advocates of Psychophysics claim to have established are the following. The absolute sensibility of the skin to tactual pressure varies in different parts from ·002 to ·015 of a gramme; the absolute sensibility of the skin to changes of temperaure varies from ·2° to ·9° Centigrade, the skin being about 30° Cent., that of hearing is the sound of a ball of cork, 1 milligramme weight, falling on a vibrating plate from a height of 1 millimetre, at a distance of 91 mm. from the ear; that of sight, the $\frac{1}{300}$ of the light reflected by white paper under the full moon. The ratio of the minimum increment to the original stimulus requisite to effect a new sensation is said to be, for tactual pressure $\frac{1}{30}$, for sight $\frac{1}{100}$, and for muscular strain $\frac{1}{40}$. There is, moreover, a certain maximum, just as well as a minimum, beyond which the law admittedly does not hold. This maximum measures the *height* of the sensibility of the sense, and the interval between the *height* and the *threshold* constitutes the *range of the sensibility* of the sense.

The professed object of this line of investigation is to introduce quantitative measurement into Phenomenal Psychology, and so to reduce this branch of mental philosophy to the condition of an exact science. Now, whilst we readily admit that great care and ingenuity has been exhibited in carrying out these experiments, and that many of the facts established are curious and interesting, we believe that the advocates of Psychophysics mistake and seriously exaggerate the value of that branch of study. (1) In the first place, it may be objected that the cardinal doctrine of most psychophysicists is erroneous. Because accuracy of quantitative measurement is a good criterion of the perfection of a physical science, it does not follow that the same rule holds for our knowledge of the mind. The realities with which the psychologist deals are quite different in kind from those of the physicist, and the attempt to coerce both into a common mould must prove injurious to either. From the earliest times it has been held that *quantity* is precisely the category under which mind and matter cannot both be grouped. (2) Then, it is only a small part, and that the lowest and most unimportant part of mental life, that can be at all approached by the instruments of this science. Emotions, volitions, and all intellectual processes are obviously beyond the reach of any form of quantitative measurement. (3) Again, there may be raised an objection against the conclusions of psychophysicists even within the restricted sphere of sensational consciousness, an objection which strikes at the possibility of any kind of quantitative estimate of mental phenomena. An assumption, involved in all Weber's experiments, and lying at the root of the chief psychophysical law, implies that while sensation increases in quantity or intensity, the *quality* remains unaffected. A locomotive of twenty-horse power can drag a load twice as heavy as an engine of ten-horse power. The force exerted in such a case may be rightly described as double in quantity yet similar in quality. But we can hardly say this as regards the energies of mental life. Sensations of light, sound, temperature, and the rest, increased in intensity, do not appear to preserve the same quality of consciousness. The transition from black to white, from hot to cold, from the trickling of the fountain to the roar of the waterfall, is not merely a variation in quantity. In small increments, the alteration in quality may escape notice, but when the effects of large changes in the degree of the stimulus are compared, introspection seems to affirm changes of quality as well as of quantity. (4) Finally, these difficulties are reinforced by serious attacks from careful observers, who question the truth of the alleged results on the evidence of direct experience. Thus, Hering, for example, rejects the Weber-Fechner generalization on the grounds, (*a*) that admittedly its application has to be limited to a very narrow range above and below normal stimulation, and (*b*) that it is completely "inapplicable either to taste or smell, to heat, to weight, or to sound, and that therefore it has not the character of a general law of sensibility."[8])

Readings.—On the physiology of the nervous system, see any of the elementary text-books of physiology Carpenter's *Mental Physiology*, c. ii., and R. S. Wyld's *Physics and Physiology of the Senses*, Pt. IV. treat the subject well, with special reference to Psychology However, by far the best and most exhaustive work on the physiological conditions of mental life, which has yet appeared in English, is Professor Ladd's *Elements of Physiological Psychology*. On the history of the terms *sensation* and *perception*, cf Hamilton, *Metaphysics*, Vol. II. pp. 93—97, and *Notes and Dissertations on Reid*, Note D. The subject of *species* is treated in all the Latin manuals; perhaps, Sanseverino's *Dynamilogia*, pp 373—403, is amongst the best. Suarez, *De Anima*, Lib. III. cc. 2, 3, discusses the matter at length. An admirable exposition of the Scholastic doctrine of *intellectual* knowledge by means of *species* is contained in Kleutgen's *Philosophie der Vorzeit*, §§ 18—52.

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[8] Ribot, *La Psychologie Allemande*, p. 196. Chapter v. of that work contains a good *resumé* of the subject. See also, Ladd's *Physiological Psychology*, Pt. II c. v , whence we have selected our figures. The reader of that chapter will notice how much disagreement prevails even regarding these latter. Of Catholic writers, Dr. Gutberlet exhibits most sympathy with psychophysical investigations. Cf *Die Psychologie*, pp. 34—41 Whilst the reality of *Weber's Law* is subject to such serious dispute, speculation as to its interpretation seems to be alike hopeless and unprofitable

CHAPTER V.

THE SENSES.

A GROUP of sensations containing a number of features in common are assigned, we have said, to a special sense. The question may now be raised, how many senses have we? There has been a good deal of disagreement on the point among modern writers, but the decision arrived at does not seem to us to be of very much importance, provided that the various forms of sensibility be recognized. The specialization of the organ, the nature of the stimulus, and the quality of the consciousness, have each been advocated as the true principle of classification, and different plans have consequently been drawn up.[1] In favour of the old-fashioned scheme of the five senses, *taste, smell, hearing, sight,* and *touch,* it may be urged that it recognizes the obvious structural differences of organ, to a great extent the most marked differences in the quality of the consciousness, and also generic differences in the phenomena apprehended. The eye reveals to us colours, the ear sound, the nose smell, the tongue taste, and touch pressure. In the language of the schools, the *formal objects* of the several senses are generically different. However, if this classification be adopted, it must be remembered that under the sense of *touch* are comprised many groups of mental states importantly different in quality, and frequently attached to parts of the organism of very specialized characters.

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[1] Following Kant, Hamilton styles the five special senses the *sensus fixus*, and adds to them a sixth general sense, the *sensus vagus*, *common feeling*, the *vital sense*, or *cœnæsthesis*, embracing the feelings of temperature, shuddering, health, muscular tension, hunger, and thirst, &c. Dr. Bain's scheme stands thus: A Muscular sense. B. Six classes of organic sensations: (1) of muscle, (2) of nerve, (3) of circulation and nutrition, (4) of respiration, (5) of temperature, (6) of electricity. C. The five special senses. G. H. Lewes emphasized the importance of the *systemic* sensations, *e.g.*, feelings of digestion, respiration, temperature, circulation, &c. Mr. Murray, who adheres consistently to distinction of organ as his principle of division, gives this classification: I. The Five Special Senses. II. General Senses. A. Connected with a single organ, (1) muscular sensations, (2) pulmonary sensations, (3) alimentary sensations. B. General sensations not confined to a single organ. (1) of tem-

The most convenient order of procedure will be to start from the simpler and more easily described faculties, and to go on gradually to those of a higher, more varied and complex nature. In our exposition we will adopt the usual plan of saying a few words on the formal object of each sense, on the physiological machinery employed, and on the character of the consciousness awakened. In dealing with this last phenomenon, which is the proper subject-matter of Psychology, the two chief features to be attended to are what have been

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perature, (2) of organic injuries, &c., (3) of electricity. The true principle, however, if it could be satisfactorily applied, would be the quality of consciousness. Differentiation of organ is an extrinsic physiological consideration. Still the difficulty of determining how much qualitative difference justifies the assumption of a special sense renders the former principle of little value once we depart from the old scheme of five senses styled the *emotional* and the *intellectual* aspects of the sense By the former is meant, the susceptibility of the faculty to pleasure or pain; by the latter, its efficiency as an instrument of knowledge of the external world. The use of the epithet "intellectual," however, is very inaccurate here, and still more so when applied to individual sensations. The Intellect is a faculty essentially distinct from sensuous powers, and its activity, just as that of any of the senses, may possess a pleasurable or painful character. It will accordingly be more appropriate to term this property of a sense or sensation its *cognitional* aspect.

TASTE.—The formal object of the sense of taste is that quality in certain soluble substances in virtue of which they are called *sapid*. The organ of taste is the surface of the tongue and palate. Over these surfaces are distributed the *gustative papillæ*, from which nerves proceed to the brain. In order to excite the sensation, the body must be in a state of solution in the mouth. The precise nature of the action of the sapid substance on the papillæ is unknown, but it is probably chemical.

The sensations of this faculty do not possess such definite qualitative differences as to fall into well-determined groups, and consequently there is no general agreement in the classification of different tastes. The proper pleasure of the sense is sweetness, its proper pain bitterness. Most gustatory sensations involve elements of tactual, nasal, and organic feelings. Thus, acid, alkaline, fiery, and astringent tastes, are in part the effects of tactual stimulation; feelings of relish and disgust are traceable to the sympathy of the alimentary canal; and sensations of smell also influence our estimation of the sapid qualities of many substances. The cognitional value of the sense is very low. Continuous stimulation rapidly deadens its sensibility: its recuperative power is tardy, its sensations are wanting in precision, and they can be but very imperfectly revived in imagination. The main grounds of its cognitive inferiority, however, lie in its essentially subjective character. Abstracting from the information afforded by concomitant tactual sensations, taste originally gives us no knowledge of external reality, and, consequently, with the exception of the vague systemic feelings of the organism, it must be ranked lowest as a medium of communication with the physical world. On the other hand, viewed from the standpoint of feeling, this sense is capable of intense but short-lived pleasure and pain. Though the lowest of our faculties in point of refinement, and the most subject to abuse, its great utility as a guide in the selection of food throughout the animal kingdom is evident.

SMELL.—Odorous particles emitted from gaseous or volatile substances constitute the appropriate stimulus of this sense. The organ of smell is the cutaneous membrane lining the inner surface of the nose. The action of the odorous substance is probably of a chemical character, and the simultaneous inhaling of the air is requisite for the production of the sensation. In the act of inhalation the stimulating particles are drawn through the nostrils over the sensitive surface. Even the strongest smelling substances are not perceived as long as we hold our breath. This sense resembles that of taste in many respects. Vagueness is a marked feature of each; continuous excitation renders both obtuse; their recuperative power on the cessation of the stimulus is weak; and both are originally of a like subjective character. The close affinity of the two faculties is exhibited in the difficulty of determining how far the recognition of a particular substance is due to taste, and how far to smell; and in the readiness with which most of the adjectives, such as sweet, bitter, pungent, primarily qualifying sensations of taste, are transferred to those of smell. The attempt to distinguish port wine from sherry, apart from sight and smell, is a familiar method of illustrating the former. The delicate susceptibility of smell to some kinds of stimulation is, however, very surprising. The merest trace of a drop of oil of roses awakes a pleasurable feeling, and as infinitesimal a particle as the one thirty-millionth part of a grain of musk is perceptible. The delicacy of this faculty in the dog and other brute animals,[2] as is well known, far exceeds what it attains in man. Just as in the case of taste, the sensations of smell may be of an extremely agreeable or disagreeable character. They stand higher, however, in order of refinement. They are, too, more easily revived in imagination; and, being awakened by objects at a distance, these sensations, like those of sight, assume the character of premonitory signs of other future experiences. In this way the sense of smell comes to surpass both organic and gustatory sensations, as an instrument of external perception.

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[2] Cf. Bernstein, *The Five Senses*, p. 290. He says that some animals can, when the wind is favourable, scent the huntsman several miles away. The number and the minuteness of the volatile particles which proceed from objects perceivable at such distances pass comprehension

TOUCH.—Under the generic sense of touch are comprised a variety of classes of feelings widely different from each other. Consequently, very early in the history of Psychology, we meet with discussions as to whether this term does not include several specifically distinct senses. Aristotle[3] called attention both to the close relationship of taste with touch, and to the divergent nature of sensations of temperature, of softness and hardness, and of contact proper. It would certainly seem that sensations of temperature, differing so much in quality from those of touch proper, awakened, moreover, by distant objects, and seated either in different nerves or different properties of nerve, from those of our tactual feelings, have as strong claims to be considered the utterances of a separate sense as our gustatory states. Since, however, every proposed subdivision of touch into separate senses appears open to grave objections, and since the question is really of no very great importance, the most convenient plan will be to distinguish and describe separately the leading modes of sensibility included under touch in its widest sense, without deciding whether they should be assigned to different faculties. These forms of consciousness are: (1) the *organic sensations*, (2) the *sensations of temperature*, (3) *touch proper*, and (4) the ***muscular sensations***.

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[3] Aristotle, in the *De Anima* II. ll. 22—24, holds a plurality of senses to be contained under the generic faculty of touch. Elsewhere, in the *De Gen. Animalium*, he seems to adopt the monistic view. St. Thomas, however, prefers to look on these sensations as merely different classes of feelings comprised under one tactual sense, the formal object of which has not received a definite name. Cf. *Sum.* i. q. 78. a. 3; also Schiffini, *Disp. Metaph.* Vol. I. p. 322.

(1) *The organic sensations, common sensibility, cœnæsthesis*, or *the vital sense*. Under these various designations are included the numerous modes of sensuous consciousness attached to the organism as a whole, or to particular portions of it. Their essential function is to inform us, not of the properties of the extra-organic world, but of the good or ill condition of our own body. Prominent among them are the *systemic* sensations, comprising those of the alimentary canal, such as the feelings of hunger, of thirst, and repletion, the sensations of respiration, of circulation, and such other states as are normal to the system. In addition to these, the chief remaining organic sensations are those arising from disease, and from laceration or fracture of any part of the organism. Estimated from a cognitional point of view, the organic sensations are of little importance. With the exception of particular hurts, they are of an indefinite and obscure character. They can be but very feebly reproduced in imagination. Being in great part beyond the range of touch and sight, they are vaguely and imperfectly localized, and they give us practically

no information regarding the external world.[4] On the other hand, as sources of pleasure and pain, they possess immense influence over the tenour of our existence, and they are of the greatest utility as guardians of our physical health.

(2) Diffused throughout the organism as a whole, yet specially seated in the skin, the sense of *temperature* has claims to be grouped both with the *organic* sensations and with the sense of *contact* proper. Some writers have maintained that our consciousness of temperature is dependent on a set of nerves distinct from those employed in tactual sensation. This is not yet absolutely proved, but that the properties of the nerve-fibres involved are completely different[5] is shown by the fact that either class of feelings may be almost entirely suspended, whilst the other remains comparatively unaffected. As our consciousness of temperature is relative to that of our own person, this sense can afford little assurance about the absolute heat or coldness of an external object. When the environment is of the same temperature with that of the part of our body exposed, we are unconscious of it. If we pass into the chill night air from a hot room, we are

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[4] *Common Sensibility* has, however, great importance from an intellectual standpoint in this respect, that it is the source of much error. It may seriously distort men's judgments Peace and war have at times depended on the Prime Minister's digestion.

[5] Recent ingenious experiments by Goldscheider and other physiologists, seem to show not merely that the nervous end-apparatus of temperature sensations differs from that of pressure and of pain, but even that there are in the skin distinct "heat-spots" and "cold-spots"—minute localities sensitive to heat but not to cold, and conversely This appears surprising when we recollect that to the physicist heat and cold are purely relative. Cf. Ladd, op cit. pp. 346—350

keenly aware of the change, but even before the skin of our face and hands is reduced to the same degree of warmth as the surrounding atmosphere, we become habituated to the stimulus, and consciousness of temperature almost disappears. It has been found, however, that within a moderate range, fine variations can be noticed in comparing the temperatures of two bodies; and the hand is able to detect a difference of ¼ a degree Cent. in two vessels of water. The effect of heat or cold increases with the extent of the surface exposed. Thus, water which feels only comfortably warm to the hand or arm, may cause severe pain if the whole person is immersed. In extreme heat and cold, the sensation of temperature proper disappears, and, instead, in both cases, a like feeling of keen organic pain ensues. In polar voyages, the sailors speak of cold objects *burning* their hands. Viewed generally, this sense is of little cognitive, but of much emotional significance. Its appropriate pleasure lies in moderate warmth, its specific pain in extreme heat and cold.

(3) Sense of *contact* or *touch proper.* The organ of this sense consists of a system of *papillæ* distributed over the surface of the *dermis*, or under-skin, which covers the surface of the body. Over this *dermis* lies the cuticle or external skin, which acts as a protection for the papillæ, nerves, and veins lying beneath. From the papillæ proceed nerve-fibrils to the spinal column and thence to the brain. The proper stimulus of the sense of touch is simple pressure on the external skin. In order that a sensation be awakened, the effect of the physical

excitation at the surface must be transmitted along a sensory nerve to the brain. If the nerve is severed above the point of irritation, no mental state is elicited, and if an intersected nerve is irritated above the point of severance, the cause of the sensation aroused is judged to be at the old peripheral extremity. From this it has been inferred that the sensation occurs not at the surface, but in the brain or central sensorium, and that it is by experience we come to learn the seat of the exterior impression.[6] If this doctrine is to be interpreted as implying that peripheral stimuli were originally localized by us in the brain, or that the soul is confined within the limits of the brain chamber, and that the action of the excitant impinges upon it there, then it must be rejected as warranted neither by physiological nor psychological evidence. The fact, however, may be held to show that our ability to localize impressions is very largely due to experience, and that our original capacity in this respect was very imperfect.

The physiological process which is the proximate cause of sensation contains three stages. The first is the peculiar action set up in the exterior terminals of the nerves of the various senses. The specialization in structure and constitution of these apparatus, which modern Physiology has brought into prominence, demonstrates the significance of this moment in the operation. The second step is the transference of the excitation by means of a molecular change along the nerve to the brain. Here the last item in the physical process takes place, but of its character we know virtually nothing. On its completion, however, the soul which animates equally every part of the nervous system, and, in fact, every part of the organism, reacts in the form of a conscious sensation. The quality of this mental state is affected by the portion of the body in which the physiological process has taken place; the feeling, for instance, of an impression on the leg or the back is different from that of a similar impression on the arm. Nevertheless, the sensation is not definitely localized from the beginning at the precise spot of peripheral stimulation; the exact site of the starting-point of the neural change is learned by experience. This subject will, however, be discussed more fully in a future chapter.

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[6] The doctrine that the true seat of sensation is a limited internal centre is as old as Aristotle. Cf. St. Thomas, *Comm De Anima*, II ll. 22, 23. He holds there that the heart is the proper locus of tactual sensation, the intervening flesh being only a medium differing from the air or other external media by the fact that it is not an accidental but a connatural instrument. That our apparent consciousness to the contrary does not suffice to decide the question, he shows by pointing to the fact that if a covering or rigid substance is placed between the skin and the excitant, we then localize the sensation at the outer surface of the new tegument, and not in the skin In the *De Gen Animalium*, however, he seems to pass into the other view. Cf. also P. S. Seewis, *Della Conoscenza Sensitiva*, pp. 368--372. Dr. Stöckl is among the most distinguished of modern scholastic writers who support the view that sensation is elicited, not in the external parts of the sense-organ, but in the brain. Cf. *Empirische Psychologie*, § 6, n. 12.

The sense of touch stands very high as a medium of external perception, yet its sensations possess in many respects the vagueness and want of precision which characterize the faculties hitherto dealt with. Thus there is comparatively little variety in kind among our tactual feelings which are mainly discriminated as rough, smooth, gentle, and pungent.

They possess, however, a delicate sensibility to differences in the intensity and duration of the stimulus, and still more important in this connexion, they are endowed with fine *local characters* on account of which they come to be referred with great accuracy to the place of their excitation. By means of this property the mind is able simultaneously to apprehend co-existing points, cognizing them as separate; and in this apprehension there is the presentation of *extended space.* The simplest form of tactual sensation, such as that of the contact of a feather, does not seem to involve the feeling of pressure, and this is sometimes styled the sense of contact proper, but it scarcely passes beyond the range of the organic sensations. The vast majority of our sensations of contact are sensations of pressure, and this element must be included under the sense of touch.

Sensations of pressure are commonly blended with muscular feelings of *resistance* on our part, and occasionally with those of *movement.* These feelings of impeded energy and of movement constitute the manifestations of the so-called *muscular sense* of modern psychologists. The difference between the tactual and muscular consciousness of pressure will be realized by holding up a half-pound weight on our hand, and then placing the same weight on our hand whilst the latter is supported by the table. In the former case there is in addition to the tactual impression a feeling described as a sense of effort or strain. Again, if we allow our arm to be unresistingly moved by another person, we shall have the passive consciousness of pressure or contact, with also faint tactual and organic feelings due to the changing position of the skin, joints, and muscles. But if we ourselves move it, instead of the passive feeling of pressure we have the consciousness of muscular energy put forth, accompanied as before by the faint organic and tactual sensations due to the varying position of the limb. If our arm meets with some resisting object, then the difference between the feeling of pressure from without and strain from within comes into the clearest light.

The sensibility of the skin to purely tactual pressure varies in different parts of the body. If the same point on the hand is tested, we can notice the difference between two successive pressures when it equals the $\frac{1}{30}$th of the original weight. Pressures on two different hands can only be observed when one exceeds the other by $\frac{1}{3}$. The capacity of touch for local discrimination also varies in different parts of the skin. The method of experiment adopted by Weber, was to place the two points of a pair of compasses on the part to be examined, and then to widen or narrow them until the two points could be just felt as separate. It was found that along portions of the back and forearm the points of the compass required to be from two to three inches apart in order to be distinguished, whilst on the tips of the fingers and the tongue an interval of one twelfth and one twenty-fifth of an inch sufficed. The spaces within which the doubleness of the stimulus is not observed are called "sensory circles," though the figure is not generally an exact circle. The smallness of the circle measures the perfection of the sensibility.

The consciousness of mere contact, of tactual pressure, and, with some writers, that of temperature, comprise the feelings which should be grouped under *touch proper*. There are, also, a few other special modes of tactual sensation, such as tickling, and itch, which have a very well marked character of their own. Sensations of touch cannot be very vividly reproduced in imagination; yet the reality of these representations is shown by our power of comparing a present sensation of touch, such as that of a brush or piece of silk with a recollected experience, and also by the manner in which ideal sensations of touch are awakened by the visual appearances of objects. We seem *to see* the roughness, smoothness, or softness of objects, although, of course, these properties can only be apprehended by touch. This fact, too, marks the high degree of associability possessed by these sensations. These various qualities of the sense of touch give it great importance in the department of objective cognition. We have not, however, hitherto laid stress on the fact that pressure, revealed through tactual sensations, is an influential agent in the generation of our conviction of the externality of the material world, just as the apprehension of co-existing points determines our assurance of its extension. In such sensations of pressure muscular feelings are often implied, and though passively received impressions of contact do really involve the apprehension of something other than ourselves, it is when combined with the muscular sensations, and as consequents on the effort put forth by our own energy, that their full significance in the apprehension of the reality of the external world is realized. As a source of pleasure the sense of touch, apart from feelings of temperature and other organic states, ranks low. It has, however, been selected from the beginning as the sense most convenient for the infliction of chastisement, and its capacity in this respect is indisputable.

(4) The *muscular sensations*. It is, when allied with feelings of movement, or of active resistance, as we have already remarked, that the sense of touch usually manifests itself, and it is in this relation that its intellectual or cognitional importance becomes most conspicuous. What is the precise organ of the muscular sensations is not yet decisively determined. Some physiologists and psychologists hold that these feelings have as their physiological basis a stream of centrally initiated motor energy which traverses the efferent nerves in the execution of movement or active resistance. Others locate the muscular sensations in the ordinary sensory nerves lying adjacent to the skin or alongside of the muscles. In this view muscular feelings are mainly centripetal, tactual or organic sensations, informing us of changes taking place in the condition and situation of the muscles, bone, and skin of the member in question. Others, again, maintain that these mental states appertain to certain nerves imbedded within the muscles. The

question is, however, mainly physiological, and it is unnecessary to enter more deeply into it here.

The most commonly recognized feelings of muscular activity are two—those of *movement*, and of *strain* or *resistance*. But an all-important factor, though not sufficiently attended to by the majority of psychologists, is the consciousness of exerted *will-power*, or self-initiated causality. When this element in muscular consciousness is recognized, the residual feeling unaccounted for without the assumption of a special "active" sense is reduced to insignificant dimensions. The organic and tactual sensations due to the stretching of the muscles, nerves, and skin, in the successive positions assumed by the limb, would seem to sufficiently explain the rest. These passive sensations measure the effects wrought by our volitions, and being intimately associated with these latter conspire to form those peculiar mental states which are ascribed to the *muscular sense*.[7] In this view the physiological concomitants of the total mental state would probably include neural processes in both motor and sensory nerves.]

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[7] Dr. Martineau, *Essays*, Vol. I. pp. 260, 261, and Dr. Noble, among others, adopt a view similar to that advocated here. "What on close analysis is the muscular sense but the feeling of tension in the muscles? If we regard this feeling in its several modifications, it seems to be identical in all essential respects, with variations of sensation in the skin. In its primary degree simple cognition of muscular tension is obtained, as it becomes intensified *fatigue* is experienced, then *ache*, and in its last measure *pain* may be felt as in spasm. . . . Have we not engaged in such a case the same sense as that which is common more or less to all the body." (Cf. Noble, *The Human Mind*, pp. 51, 52.) Dr. Bastian, who analyzes muscular sensations mainly into "impressions of tension and pressure transmitted by ordinary sensory nerves, *e.g.*, from muscles, from joints, and from skin," holds that "there is no endowment worthy of the name of *muscular sense*" (*The Brain as an Organ of Mind*, p. 696.) He gives there (pp. 690—700) a history of modern views on the subject. On the other side, cf. Ladd, op. cit. pp. 344, 345.

The sensation of resistance or impeded energy is awakened by such an action as that of pulling or pushing the handle of a closed door; the feeling of movement is elicited in changing the position of a limb. The discriminative sensibility of our muscular consciousness to varying degrees of resisting force is very delicate. Weber ascertained that the normal capacity in this respect is measured by the fraction one-fortieth. That is, ordinarily speaking, we can just distinguish by lifting with the same hand a weight of forty ounces from that of forty-one. The duration of muscular sensations is also finely felt. This latter property, when we have acquired the power of estimating velocity, is the chief instrument in our measurement of space. A sweep of the arm lasting for a longer or shorter time, velocity being equal, passes through a greater or less space. Estimation of velocity is not an original quality of muscular feeling, but is learned by experience. Velocity has no meaning unless in reference to space, and it is determined by the quantity of space traversed in a given time. We observe that, in a given time, a certain amount of energy is required to move the arm over a definite length of space, known by sight or touch. By association the degree of impetus becomes the symbol of the rate of velocity. The calculation of the quantity of movement executed by our limbs through means of the muscular feelings alone, unless in the case of a familiar act, is generally very imperfect. If we attempt to ascertain the size and shape of a strange room in the dark, we shall find how vague are our notions of movement. Similarly, if the eyes are closed and the arm is bared so that the tactual sensations of the sleeve are eliminated, the inadequacy of motor estimation of space will become apparent; when the velocity is increased we invariably undervalue the distance moved through.[8]

The muscular sensations, like the other organic feelings, cannot be vividly revived in imagination, but our power of determining the exact degree of energy to be put forth in the practice of habitual actions, such as standing, walking, writing, speaking, and the like, is very delicate. The sense of sight, just as well as that of contact, is a heavy debtor to these sensations. Not only the movements of the head and the eyes, but the still more minute changes by which the convexity of the crystalline lens is modified to suit the varying distance of the object, are all effected under the guidance and estimation of muscular sensations, and it is only by means of their acute sensibility that many of the nicest discriminations of the visual faculty are possible. 'Movement enables us to multiply the experiences of each sense, to vary the relations between the object and the faculty, and to bring the most sensitive part of the latter to bear on the former. Consequently, the sensations which measure movement play an important part in perfecting our knowledge of the properties of matter.] Still it is the consciousness of foreign resistance revealed in tactual and muscular feelings combined, which forces upon us most irresistibly the reality of the external material world. In this respect the cognitional importance of the united muscular and tactual sense exceeds that of sight and all the other organic faculties together.[9]

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[8] The fact that our muscular appreciation of velocity is not innate but acquired, and is at best vague and indefinite, constitutes a very serious difficulty to writers like Dr. Bain who resolve our perception of space into the consciousness of unextended muscular sensations varying in duration and velocity. The latter idea involves the notions both of space and time, and should not be assumed as an innate endowment, least of all by the empirical school Cf Mahaffy, *The Critical Philosophy*, pp 138—144.

The muscular feelings may give rise to a good deal of pleasure or pain. When the body is in a healthy condition muscular exercise affords keen enjoyment, as is established by the general popularity of field sports. The proper pain of muscular sensations is fatigue, and this can be very severe when forced activity is maintained under exhausting conditions. Besides these mental states which we have described, [the muscles, like other parts of the body, can be the subject of the pains of laceration or disease,] but such feelings belong rather to the general group of *organic sensations*.

HEARING.—This sense is aroused by vibratory movements transmitted from the sonorous substance through the air or other medium to the ear. The organ of hearing consists of three chief parts, the external ear including the *pinna* and external *meatus*, the *tympanic cavity*, drum, or middle ear, and the *labyrinth* or internal ear. The two extremities of the tympanic cavity are connected by a chain of small bones, and the labyrinth consists chiefly of a number of small cavities, and contains a liquid in which the auditory nerve is distributed. The vibrations transmitted from the sounding object are concentrated by the external ear, and passed on through the middle ear by means of the chain of small bones to the liquid contained in the labyrinth. The disturbance of this substance excites the auditory nerve, and this excitation is the immediate antecedent of the sensation of sound.

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[9] Amongst the qualities of matter made known by combined muscular and tactual sensations are solidity, shape, size, hardness, softness, elasticity, liquidity, &c Consciousness of movement and of variation in pressure are the main factors in such perceptions.

Sensations of hearing naturally divide into two great classes, those of *musical*, and those of *non-musical* sounds. Another important division is that into *articulate* sounds, or the words of language, and *inarticulate* sounds. When these last are non-musical they are called *noises*. The musical character of the first class of sounds seems to be dependent on the periodical nature of the vibrations which excite these sensations. The chief properties of musical notes besides intensity, are *pitch*, *quality*, and *timbre* or *clang*. The *pitch* of a sound means its altitude on the musical scale, and is determined by the rapidity of the vibration. The terms *timbre*, *clang*, and sometimes *musical quality*, designate the peculiar feature by which the sound of a note on one instrument differs from that of the same note on another. Thus the *timbre* of the violin differs from that of the cornet and of the human voice.[10] Particular combinations of notes according to certain relations of pitch produce the agreeable effect known as *harmony*. Notes which sounded together produce instead an unpleasant sensation, are said to be *discordant* or *inharmonious*. Under certain circumstances, however, discords may be pleasant. Groupings of musical sound in particular time periods produce the consciousness of *melody*, and skilful combinations of various instruments so as to secure harmony melody, and agreeable blending of *timbre* conspire to awaken the delightful feelings of a rich symphony.

Of the non-musical sounds the number which are classed as mere noises are practically unlimited. The collisions of different bodies, the cries of the various animals, the roaring of the wind and of the ocean, are instances of such. All forms of sound, both musical and non-musical, are susceptible of discrimination in regard to *intensity* and *duration*, as well as in regard to *quality*. It is owing to the very great delicacy of the ear in these several respects that articulate speech is an instrument of such enormous value. More than five successive excitations per second produce a continuous sensation in the eye, while the recuperative power of the auditory nerve is so perfect that we can distinguish sixteen impressions in the same length of time. The rapid succession of sensations, frequently separated by but slight differences in character and intensity, which present to us without fatigue the long series of syllables constituting a speech, exhibit the wonderful perfection of this sense under these various aspects.[11]

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[10] Helmholtz explains the different *timbre* of different instruments as due to variations in the upper tones which accompany the proper fundamental note However, this theory cannot, as yet, be held to be established.

Sounds of all kinds are highly susceptible of being conserved in the memory and reproduced in imagination, and they are also readily associated with other mental states. To this latter property is due their aptness to constitute a system of symbols. The repeated conjunction of the sound of a name with the perception of its object causes the former to suggest in the mind of the child the idea of the latter. Later on, with the dawn of intellect and reflexion, words come to be used and recognized as signs of things. In acquiring a foreign language, the primary associations are formed, not, as in learning our mother-tongue, between the foreign words and the objects which they signify, but between the former and the corresponding terms in our own language, by the assistance of which we ordinarily think and reason about the objects of experience. In commencing to read the connexion is first formed between the visual sign and the oral syllable or word, though gradually the intermediate representation of the word tends to drop out of existence, and in the end the written symbol immediately suggests to us the object signified.[12]

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[11] A good *musical* ear is one that possesses a fine sensibility to pitch, to melodious groupings of successive tones, and to symphonic combinations of timbre. A good *linguistic* ear is one finely discriminative of the quality of sounds, and of the varying degrees of intensity which mark intonation or accent. As a consequence the two aptitudes are not always united. The ear well formed to catch the peculiar characteristics of the French, German, or Italian languages, may be insensible to considerable differences in pitch, and therefore unconscious of the discord effected by inharmonious combinations. Perfection in either line implies good individual capacity of retention. Keen susceptibility to differences of pitch, and consequently to musical harmony, may be found where the general power of hearing is comparatively feeble, and *vice versa*. For a good linguistic ear, however, general acuteness of the sense seems requisite.

Notwithstanding its very delicate sensibility as to differences in quality, intensity, and duration, in addition to the very revivable and associable character of its sensations, which all conspire to give the ear such high intellectual value as a representative faculty, it ranks very low as a direct medium of objective knowledge. Of itself it affords no information of the extension or impenetrability of bodies—the two fundamental properties of matter. Indeed, the attribute which it immediately reveals is of a purely secondary and accidental character. Nevertheless, of such a high order are the intrinsic excellences of its sensations, and so admirably are they adapted to compose a perfect system of signs, that, when once a few elementary experiences have been gathered by the other senses, this faculty is enabled, by appropriating them, to put us into a position to take possession of the rich treasures of knowledge acquired by the whole human race.

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[12] The muscular sensations excited in uttering words either aloud or in a whisper, make a parallel line of association with the aural and visual signs, and in persons in whom the faculty of articulation is more retentive, or more frequently exercised in acquisitions of this sort, thinking and reading in silence tend to be accompanied by movements of the lips. Energetic effort to realize the full import of the visual sign occasions the same phenomenon.

The capacity of the ear for pleasure is large, while its potentialities for pain are comparatively limited. The agreeable feelings awakened by the qualities of musical sound are of the noblest and most refined character. They are rich in variety, they do not pall by long continuance, and they may be frequently renewed. In all these respects they differ from the gratifications of the less refined senses. A far greater part, however, of these higher pleasures are traceable to intellectual and emotional enjoyment afforded by the general character of a musical composition than to the mere sensuous satisfaction produced by pleasant sound. Cultivation increases the refinement and extends the range of this capacity for happiness, but at the same time rendering the faculty more keenly alive to defects and blemishes it annihilates many minor pleasures possible to the less delicate taste. Discord is painful to the musical ear, and harsh sounds of any kind, as well as intense noises, have an unpleasant effect on all normally endowed persons.

SIGHT.—The formal object of the eye is coloured surface. According to the now generally accepted undulatory theory, the physical conditions of sight consist of vibrations transmitted to the eye through the intervening ether from the reflecting or self-luminous body. Difference of colour depends on variation in the rate of rapidity of the vibratory movements. The organ of vision is an optical instrument of a very complicated and ingenious construction. The eye-ball is a nearly spherical body containing within it three masses of transparent liquid or gelatinous substances called humors, and so arranged as to form a compound lens. The shape of the eye-ball is secured by an outer coating called the *sclerotic*, which embraces the whole eye with the exception of the circular spot in front, where the transparent *cornea* takes its place. Under the *sclerotic* is a second covering, the dark *choroid coat*, and over the interior surface of this towards the back of the eye is distributed the *retina*. This is a transparent network composed of several layers of fibres and nerve cells, and connected with the *choroid* by a layer of rods and cones. These latter seem to be the properly sensitive apparatus. In the centre of the retina is the *yellow spot*, which is the most sensitive part of the organ, and here the rods and cones are packed in greatest abundance. From the retina slightly to the side of the yellow spot the optic nerve proceeds to the brain. Rays falling on it are unperceived, whence it is styled the *blind spot*. Of the humors filling up the main body of the eye, the middle one, called the crystalline lens, which is of double convex form, is the most important. The shape of this lens is capable of alteration, being rendered more or less convex by the automatic contraction or extension of the ciliary muscle to suit the distance of the object viewed. When something is presented to the eye, the rays passing from it enter the pupil of the eye and are concentrated by the lens arrangements so as to form an inverted image on the retina. From the layer of rods and cones forming the inner stratum of the retina, this impression is conveyed as a neural tremor to the brain, whereupon the sensation is awakened.

There are attached to the eye both muscular and visual sensations proper. The former, which measure the movement and the greater or less convexity of the eye-ball, contribute very much to the accurate determination of the spacial relations of visible objects. The visual sensations proper are those of light and of colour. These are susceptible of very delicate shades of difference, and the various hues of colour and degrees in the intensity of light which can be distinguished in a landscape are virtually innumerable. It has been estimated by means of some ingenious experiments that an increase in the force of a stimulus equivalent to about one in one hundred can, within certain limits, be just discerned by the eye. The principal species of colour generally recognized are the seven hues of the spectrum, red, orange, yellow, green, blue, indigo, and violet. There are a large number of distinguishable intermediate tints between these leading colours, and the terms have therefore not a very exactly defined meaning. These various hues are found to result from the analysis of white light. The ether vibrations which excite visual sensations are of enormous rapidity, and the rate increases from about 460 billions per second, for red rays, to about 670 billions in the case of violet.[13]

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[13] Helmholtz, Mr. Sully, and others have traced analogies between the colour spectrum and the musical scale. In point of agreement we find (*a*) a series of seven principal colours, in correspondence with the notes of the gamut, (*b*) both series produced by

Although the sensation of white is evoked by a combination of physical stimuli separately productive of other feelings, it is inaccurate, as we have before indicated, to speak of the consciousness of white as being a *compound* or *complex* mental state. The sensation, in itself unanalyzable, must be accepted as such. The true type of the compound or complex sensation is that aroused by a union of different voices or instruments, where attention enables us to discriminate the separate elements of consciousness. The analysis of white light, the existence of various forms of colour blindness, of colour harmony, and of what are called *negative*[14] images, have suggested the hypothesis

variations in the rate of the vibratory stimulus, and (*c*) both capable of certain agreeable and disagreeable combinations described as harmonious and inharmonious The points of difference are however greater. (*a*) The character of each of the tones of the musical octave is so distinct and well marked as to have been recognized from the earliest times; the colours of the spectrum on the contrary are vaguely defined and pass gradually into each other, many intermediate hues having equally good claims to a recognition in the scheme; (*b*) the change in the musical octave advances regularly in one direction, each succeeding note being farther from the first, while in the spectrum the movement is along a curve, and the last colour, violet, returns nearer than either indigo or blue, to the earlier colours red and orange; (*c*) the auditory sensation rises regularly with equal increments in the rate of vibration, whilst large changes produce no consciouos effect in parts of the spectrum, (*d*) the range of vision is exhausted by a single octave, while the ear can span from six to eight.

[14] *After-images, incidental images*, or *spectra*, are of two kinds, *positive* and *negative*. The former term is used to denote the images or sensuous perceptions of objects, which frequently continue to persist for some brief time after the cessation of the stimulus. If after gazing steadily for a few minutes at a coloured object we direct our eyes to a white surface, instead of the *positive* after-image we become conscious of an image of the object, but in the complementary hue This is termed a *negative* image, and is explained on the above hypothesis as due to the temporary fatigue and consequent obtuseness of the nerves previously excited, which are now unable to absorb their share of the new stimulus.

that the nerves of vision distributed in the retina are of certain different classes adapted to respond to particular elementary forms of colour. The theory has assumed different forms in the hands of different scientists, but as the question is physiological rather than psychological, we need not enter into it here.

The term *tone* is sometimes used to express the position of a colour in the spectrum, while *depth* is dependent on the quantity of pure white light blended with the colour in question. The word *intensity* is occasionally employed as synonymous with *depth;* properly, however, it should signify the stronger or feebler force of the sensation. In addition to the fineness of the discriminative power of sight in these several respects, visual sensations are in a high degree capable of being retained in memory and recalled in imagination. In fact, so superior in vivacity are the representations of this faculty to those of the other senses, that some writers have been found to deny, but without adequate grounds, the existence of any other kind of images. The eye, though surpassing the other senses, is less delicately sensible to the duration of the stimulus than the ear. The persistence of positive after-images exhibited in the continuous impressions produced by the rapid circular movement of a bright object, prevents us from discerning more than five or six successive excitations in the second.

These numerous capabilities would be sufficient of themselves to secure to sight high cognitional rank, but it is to the fact that the eye affords an immediate presentation of *surface extension*, that its fundamental importance as a source of objective knowledge is due. The apprehension of colour necessarily involves that of space in two dimensions. It is undoubtedly true that originally the single eye, if it remained in a fixed position, could have apprehended but a very limited quantity of surface, that its perception of shape would have been extremely vague, and that it could have afforded no information at all as regards distance; but nevertheless the sensation of colour necessarily implies some perception of extension. The point will be made clearer when we come to treat of the development of sense-perception; here, however, we would note that the means by which our visual perceptions of shape and distance are elaborated, and our apprehension of surface enlarged, are changes in the position and form of the eye made known to us by muscular sensations. The movement of the axis of the eye round the object viewed, the convergence of the two eyes varying with its distance, the self-adjusting process by which the optical lens is flattened or rendered more convex so as to focus the object upon the retina, are accompanied by faint feelings of tension which play an important part in giving precision to our spatial cognitions. In mature life the "local" sensibility of the retina is very fine. Close to the centre of the yellow spot irritations as near together as ·004 mm. are felt as distinct; but the discriminative power diminishes as we pass towards the circumference. The size of the retinal image, of course, decreases with the distance of the object, still this extreme delicacy of the retina to the local character of the irritation enables the eye to become a very perfect instrument for the accurate appreciation of extension.

As a direct source of pleasure or pain visual sensations rank probably lower than those of any other faculty, though indirectly they may contribute much to our happiness. Bright lights and hues are pleasing, and harmonious combinations have an agreeable effect. An intense glare of light is painful, but the feeling is organic rather than visual. Prolonged confinement in the dark produces an intense desire for light and great joy on first restoration to liberty, but the pleasure soon fades. The contemplation of the beauties of nature and art affords rich and refined delight, but here the effect is of an intellectual and emotional character, and not an immediate function of the sense.

In our last chapter we remarked on the inverse ratio subsisting between the perceptional and the pleasurable or painful capacity of the senses. Glancing back at them now, when they have been separately passed under review, and their chief features described in detail, the truth of that observation will be realized. If we divide our tactual consciousness into the two great groups, the organic sensations, including the feelings of temperature on the one side, and the muscular feelings and sensations of touch proper on the other, and proceed to arrange them first according to emotional, and then in regard to cognitional rank, we shall find that the two schemes will assume virtually an inverse order. Viewed as direct sources of pleasure and pain, starting from the highest they seem to stand thus: organic sensation, taste, smell, hearing, muscular and tactual states, and sight. But marshalled as instruments of objective knowledge the order is reversed: sight, tactual and muscular sensations, hearing, smell, taste, and lowest, the organic feelings. This classification regards only the immediate or direct emotional and cognitional properties of the consciousness of each sense, and the intrinsic difficulties of all such comparison would probably cause diversity of view about the former scheme; still, estimated from this limited standpoint, it seems to us approximately correct.

Indirectly, indeed, sight is a much more important source of pleasure and pain than the sense of smell, and the knowledge of the universe acquired by hearing far exceeds that gathered from the actual experience of all our other senses combined; but in both cases we have merely appropriation of the results attained by the other faculties, and extension of these results by means of association and inference. Viewed purely as a state of feeling, a sensation of colour or sound can afford much less pleasure or pain than an agreeable odour, or a nauseous stench. Similarly, the sensations of hearing are more precise, more finely discriminable, and more vividly revived in imagination, not only than those of taste and smell, but even than our tactual and muscular consciousness. Yet, inasmuch as they give us immediately no assurance of the *reality*, or of the *extension* of the material world, they must be ranked cognitionally higher than taste or smell, but lower than the combined muscular and tactual sense. Touch, indeed, since it reveals the mechanical properties of the world, has claims to stand even before sight as an instrument of objective cognition, and it is certainly more necessary; still, the immense range of the latter faculty, its perfect presentation of the geometrical relations of the universe, and the delicacy of its other cognitive aspects have led us to place it at the head of the list.[15] We need not attempt any further justification of the arrangement adopted, as the reader, by returning on our treatment of the senses separately, may ascertain the various considerations which have led to our conclusion.

Readings.—On classification of the senses, cf. St Thomas, *Sum.* i. q. 78. a. 3; *De Anima*, II. ll. 22—24, et III. l. 1; *De Sensu et Sensato*, l. 1. On the various senses, cf. *De Anima*, II. ll. 13—24, *De Sensu et Sensato*, Lib. I Of modern works on the special senses, cf. Wyld, *Physics and Philosophy of the Senses*, Pt. III.; Ladd, op. cit. Pt. I c v and Pt. II. cc. iii iv. *The Five Senses of Man*, by Bernstein, is a good popular treatise in many respects, but the author frequently confuses in a very crude manner the physical and the psychological processes. A good account of the senses containing many valuable remarks on the views of Aristotle and the schoolmen in the light of modern physiological science, will be found in P. F. Salis Sewis' work, *Della Conoscenza Sensitiva*.

[15] Balmez, *Fundamental Philosophy*, Bk. II. cc x xi. maintains the inferiority of touch to sight and hearing from a cognitional point of view. He does not, however, distinguish sufficiently in this question between the direct or immediate efficacy of a sense and that which is merely mediate. In range and representative power the more refined senses vastly surpass touch, but to a very large extent their wealth is built upon the capital supplied by the more fundamental faculty.

CHAPTER VI.

PERCEPTION OF THE MATERIAL WORLD: CRITICAL SKETCH OF THE LEADING THEORIES OF EXTERNAL PERCEPTION.

How do we perceive the External Material World, and what are our grounds for believing in its real existence? This is the problem which has most harassed Philosophy since the days of Descartes. The two questions, the *Nature* of external perception and the *Validity* of our belief in a material universe, are most intimately bound up with each other. The worth of every theory of cognition must be estimated by the sufficiency of the account which it gives of the reality that is known. Accordingly, though only the question of the process of apprehension is of a strictly psychological character, while the validity of the act belongs to Applied Logic, or Metaphysics, we shall find it very advantageous in the interests of our own science to trespass here a little on the domain of another volume of the present series. This impossibility of separating the problems of the genesis and the truth of knowledge shows again the futility of all attempts at isolating Phenomenal Psychology from Rational Psychology and Philosophy proper.

Let us begin with the more fundamental question: What are our grounds for believing in the existence of a Material World outside and independent of our thought? The answer given by certain philosophers is that there are no real grounds for this belief, and that it is an illusion, or, at any rate, an irrational prejudice. This is *Scepticism*. Now scepticism may be of either of two species: the one, *absolute* or *universal*, which denies or disputes the possibility of attaining certitude by any of our faculties, or in any department of knowledge; the other *mitigated, limited*, or *partial* scepticism, which admitting certain truths as evident, and certain faculties as infallible sources of cognition, yet discredits some convictions of mankind generally deemed to be of vital importance. Against absolute scepticism argument is alike useless and impossible. Its advocate is in an impregnable position, because he puts himself outside the pale of discussion. Nothing can be done for such a man except to leave him alone. Of partial or mitigated sceptics there are many varieties, but our concern here is only with that class, commonly called *Idealists*, who deny the existence of an independent material world. Several of these philosophers will be refuted in detail in our historical sketch in the latter part of this chapter, and an exhaustive treatment of scepticism in general is to be found in the volume of this series on *First Principles of Knowledge*.[1] Accordingly, we will here limit ourselves to a brief enumeration of the arguments establishing the existence of an external material world.

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[1] Cf. Pt. I. c. viii. and Pt. II. c. ii.

(1) The reality of other *minds* is admitted, we believe, by every sect of idealists falling short of absolute scepticism. But our assurance of the existence of other minds is only an inference from changes in the *bodies* which they animate. Consequently we cannot deny the existence of the latter outside of our own consciousness and maintain the independent reality of the former. But if we admit the existence of other human bodies, clearly we cannot reject any part of the material universe. (2) The idealist cannot explain the course and development of his own mental life without implying the permanent extra-mental existence of his sense-organs and bodily frame. (3) The established relations between mental states and their neural conditions, and in fact all the chief truths of Physiology become unintelligible absurdities if the permanent existence of a material organism outside of our thought is denied. (4) Physical science in general assumes the existence of an independent material world, and the harmony of its teaching with later results verifies the assumption. (5) The mutual confirmation of our several senses, exhibited in experiences of sight, touch, and movement, similarly demonstrates the existence of a material universe outside of the mind. These faculties, which present to us the extensional character of physical objects in widely different terms of consciousness, nevertheless agree unanimously as regards the spatial relations of parts to

parts. The diagonal, for instance, bears the same proportion to the sides of the square, whether the lengths of the lines be apprehended by visual, tactual, or motor sensations. Now this unanimity is perfectly accounted for if by our several faculties we perceive a material world which really embodies these spatial relations. But if there does not exist an extended reality outside of our consciousness this agreement in the testimony of different witnesses is inexplicable.

These arguments will be more fully developed in the second part of this chapter, but their mere summary statement is sufficient to establish the existence of an extended material world of which our body forms part. The psychological question now emerges: How do we *perceive* or *know* this outer universe? Answers to this question, in spite of many important minor differences, may for the present be reduced to two. On the one side the majority of non-Catholic philosophers since the time of Descartes assume that the unextended mind cannot have an *immediate* apprehension of extended reality in any form. It can directly know only its own states. Consequently the chief effort of modern speculation has been, either, assuming the existence of a Material World, to explain how from a knowledge of purely subjective feelings the mind can attain to the cognition of such an extra-mental reality, or, rejecting the existence of this latter, to account for the universal illusion. Philosophers believing in some sort of an independent Material World, who maintain that the mind can only attain to a knowledge of such a world *mediately* as an inference from the ideas, or subjective representations, of which alone we are immediately cognizant, have been styled *Representationalists* or advocates of *Mediate Perception.* They have also been called *Hypothetical Realists, Hypothetical Dualists,* or *Cosmothetic Idealists,* since they look on the external universe as a necessary hypothesis to account for the ideas of which we have an immediate perception. All these authors err in the one common but groundless assumption that the human mind can immediately know nothing but its own unextended states. Starting from this false hypothesis, their theories give no adequate account of our knowledge of extension, and logically lead to subjective Idealism. We will expose some of their chief defects presently in our Historical Sketch.

In complete opposition to Representationalism are to be found Aristotle, all the leading scholastics, mediæval and modern, and in this country during the past hundred years, Reid, Stewart, and Hamilton. At the present day Drs. Martineau, Mivart, M'Cosh, and Porter, are amongst the best known English-speaking representatives of the same line of thought. All these philosophers, notwithstanding sundry lesser points of disagreement, hold that man in some cognitive acts at all events *immediately* apprehends extended material reality. They teach that knowledge is not limited to the perception of mental states, or to the discernment of the relations between ideas. There are outside and independent of the world of thought *real things;* and we can, these writers agree in common with the universal conviction of mankind, cognize at least some of them. This theory has been named by Hamilton the doctrine of *Immediate* or *Presentative Perception*, because it asserts that some objects of knowledge can be immediately present to the knowing subject. Its supporters have also been styled *Natural Realists*, and *Natural Dualists*, because they maintain the existence of extended material reality standing in opposition to the immaterial mind to be a primitive deliverance of our percipient faculties.

We hold the true doctrine to be that of Immediate or Presentative Perception. My present knowledge of an extended material universe independent of my mind is inexplicable unless at least in some of my percipient acts there is contained an immediate apprehension of extension; and this apprehension necessarily reveals a duality or opposition between the simple subject of consciousness and the objective material reality. The growth and development of our several percipient faculties will be described in detail in our next chapter, so that it will be our duty here merely to expound accurately what we consider to be the general philosophical theory of Presentative Perception.

We must begin by clearing up certain confused notions which have often obscured and disfigured the treatment of the problem, not only on the part of our opponents, but even in the hands of some able and vigorous defenders of Immediate Perception, especially among the Scotch school. The exact meaning to be assigned to the terms, *Ego* and *Non-Ego,* Self and Not-Self, Mind and External World, in this controversy is of the very first importance; or rather the vital point is that whatever definite significations are attached to them be steadily adhered to throughout.

Now in the first place by the term *Ego* is to be understood during the present discussion *the entire person,* the whole man made up of body and soul. The *Non-Ego* is, therefore, whatever is not part of my person. In strictness it includes God and the universe of pure spirits, but as the reality of immaterial beings does not enter into our present controversy, we may define the *Non-Ego* as, *the Material Universe distinct from my own animated organism. Self* and *Not-Self* are to be considered as synonymous with *Ego* and *Non-Ego.* The terms, *Mind* and *External,* or better, *Extra-Mental World,* must be carefully distinguished from the former pairs of words. Abstracting from all questions as to the substance of the soul, by *Mind* we here understand the *unextended conscious subject,* the unity of my psychical existence, viewed apart from my body. By the External or *Extra-Mental World,* is meant *all material reality,* including *both* my own body and the extra-organic universe. Mind is thus narrower than Self or *Ego,* and External World is wider than Not-Self or *Non-Ego.*

In the second place we must make clear our starting-point. Some representationalists often argue as if the mind were *de facto* completely separated from the body, or at any rate standing out of all relations to the corporeal frame. What would be the nature of perception in such a situation we do not pretend to determine: it is not the problem of Human Psychology. We take man as he is; one being made up of mind and body, endowed with sensuous as well as intellectual faculties, and possessed of a variety of sense-organs, the natural instruments by which he acquires knowledge, not only of the surrounding world, but of his own body.[2]

Now in the problem of the *Perception of the Material Universe,* two points connected with the ambiguous terms just defined, and consequently almost invariably confounded, have to be kept apart. They are, in fact, two distinct questions—the one, my apprehension of extension and extra-mental reality in any form, the other, my cognition of the *Non-Ego* or Extra-Organic portion of the material world. To begin with the first: we hold it to be certain that at all events in the case of its own organism the *Ego* has an immediate perception of extension. In sensations of sight and pressure there is directly revealed space of two dimensions. Whether the cause of the sensation is externalized, projected beyond the surface of the extended organism, or not, the conscious state aroused immediately presents extension. The proof of this lies in the fact that if extension were not so given the perceptions and conceptions of space of which in mature life we are indubitably possessed could never have been generated. If the mind knew only its own simple subjective modifications our present cognition of material objects would be impossible. No aggregation, composition, or fusion of mental states which individually do not present any element of extension, could produce the notion of extension. If some of our senses have directly revealed space to us, the representations of material objects which we form can be accounted for; if none of them had done so, these representations could never have arisen.] This argument will be more fully developed when we come to criticize in detail the theories advanced to explain the genesis of an external world of three dimensions out of simple conscious states.

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[2] It may be well to remind the student here that this assumption of an extended human body does not involve us in any *petitio principii.* We are not now *proving* the existence of a material world—that we have done some pages back—but we are explaining *how* man perceives this world.

Next comes the question: Do any of our percipient acts immediately make known to us the existence of a reality *other than ourselves?* It is here precision and consistency in the use of the terms *Ego, External World,* and the rest, become vitally important for clearness of thought in the present discussion. We have said that in certain percipient acts, more particularly in those of sight and touch, there is given an immediate presentation of extension: Of what is this extension apprehended to be an attribute? To what is it cognized to belong? In mature life, undoubtedly, we perceive in an apparently instantaneous flash of cognition that the object against which we press is a soft velvet cushion, that what we see is a red-brick house at the far side of a river. But this does not settle the question, for in these acts there demonstrably are involved complex processes of inference or association of ideas. Taking, however, the sensations of vision and pressure in their simplest form, do they immediately give, in addition to the perception of extension, a knowledge of material reality as distinct from the percipient agent? The solution of this question will be found in reverting to our distinctions. In the simplest percipient act which directly reveals extension there is given an immediate apprehension of "otherness," at least in the sense of the *extra-mental.* Extension, whether it pertains to our own sense-organs, or to objects outside of our body, is not at all events an attribute of simple mental modifications; it is opposed to the subjective conscious act. Consequently, although in the earlier stages of life such distinctions may not be explicitly realized, there is given in the immediate presentation of extension—whether this extension be referred to the *Ego*, to the *Non-Ego*, or not determinately to either—an immediate apprehension of what is not the *Mind.* There is thus an *ultimate duality* in our consciousness at least in this signification that some of our faculties are capable of immediately apprehending extension, and extension thus apprehended necessarily stands opposed to the unextended mind.

But is *Duality* immediately given in the wider sense? Does the percipient act not only immediately manifest to me an extended phenomenon irreducibly opposed to the simplicity of the purely subjective state, but does it also immediately reveal this extended phenomenon as other than my *Ego*, other than my *Self* in the sense of my whole being body and soul? or is my knowledge of the existence of a *Non-Ego* in the strict sense—of a material world outside of my own body—is this cognition of a more complex, mediate, and possibly inferential character? This is certainly a more disputable point. The majority of Natural Realists seem at times to imply that the *Non-Ego* in the sense of Extra-organic material reality is originally presented as extended, distinct from, and opposed to my whole bodily self; but the distinction between the two uses of the term *Ego*—as including and as excluding the organism—is on such occasions rarely kept clearly in view. The second, or qualified form of Natural Dualism, would maintain that, whereas extension, and therefore objective reality, standing in opposition to the mind, is immediately given in sensations of my own organism, yet cognition of material reality as external to my organism is a result of analysis, comparison, and inference. This view, in fact, holds that our perception of the extra-organic universe, although in the developed intelligence so easy and rapid, is nevertheless a complex process.

It does not appear to us that this second form of the doctrine of Presentative Perception is always realized with sufficient distinctness. The *Non-Ego* may, indeed, be originally and immediately presented in some of our percipient acts as extrinsic to our organism. But this is not necessary to account for our later knowledge. Fortunately, however, this second stage of the problem of Perception is of little or no philosophical importance; and at any rate the line of demarcation between inference and immediate judgment is not very well defined. It is essential that extension, and consequently, a reality opposed to the unextended subject of consciousness, be directly presented, but granted such an immediate perception, even limited to the spatial character of my own material organism, our knowledge of the rest of the universe would be readily built up.[3]

HISTORICAL SKETCH OF MODERN THEORIES OF EXTERNAL PERCEPTION.

The question of External Perception has played such a large part in modern philosophical speculation that we deem it expedient to attempt a brief sketch of the subject. And we do this all the more willingly because experience has assured us that here, as often elsewhere, the most convincing proof of the true doctrine is to be found in a careful examination of the history of counter-hypotheses.

Descartes (1596—1650), whose philosophical speculations start from the dictum that I have an immediate and infallible knowledge of my own thought and of nothing more, may be justly considered the author of the problem of the bridge from the mind to the material world. It is to *Locke* (1632—1704), however, that the various forms of British scepticism, together with the Idealism of *Kant*, are to be traced. Knowledge, Locke repeatedly maintains, consists in the perception of agreement or difference between our *ideas*. We thus immediately apprehend not an external reality, but our own mental states. Nevertheless, Locke holds that a material world does exist outside of the mind. He is thus a Hypothetical Dualist. We only know psychical representations, but we posit as their cause a physical universe.

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[3] Thus Hamilton justly observes: "It is sufficient to establish the simple fact, that we are competent, as consciousness assures us, immediately to apprehend the *Non-Ego* in certain limited relations; and it is of no consequence whatever either to our certainty of the reality of the material world, or to our ultimate knowledge of its properties, whether by this primary apprehension we lay hold, in the first instance, on a larger or a lesser portion of its contents. (*On Reid*, p. 814.)

Bishop Berkeley (1685—1753) soon made manifest the inconsistencies of Locke's teaching. Berkeley is celebrated chiefly for two contributions to the history of Philosophy, his system of *Phenomenalistic Idealism* and the *Theory of Vision* known by his name. The essence of the latter is contained in the two tenets that the eye of itself can perceive neither (*a*) distance, nor (*b*) surface extension. Visual sensations had originally as little reference to space as sounds or tastes. By experience and association, the sensations of the eye grow to be symbols of tactual and motor sensations, which constitute our knowledge of solid bodies, and of space of three dimensions. From this account of the psychology of perception the transition to his metaphysical theory of the nature of the External World is easy. Locke's groundless assumption that we can immediately perceive nothing but our own mental states, is accepted without question. All objects of knowledge are held to be reducible to *ideas* of the senses (sensations), internal feelings such as emotions, and acts of the imagination. Accordingly, we may not assert the existence of an independent extra-mental world. We can know or perceive only what is in the mind. The *esse* of every knowable object is *percipi*. If material substances existed beyond consciousness, they could in no way be *like* our ideas, and cognition of such things by ideas would be impossible. Moreover, matter could not act upon an unextended spirit. Therefore the hypothesis of an inert corporeal world which has existed for a time unperceived must be abandoned. Still, Berkeley vigorously asserted that his theory is in complete harmony with the belief of mankind. The table, chair, or fire, which I perceive, he does not deny to exist; but, adhering to Locke's assumption, he calls whatever is apprehended an *idea*, and going still further he repudiates the hypothetical material cause supposed by his master to have awakened these *ideas*. But whence then do these ideas come, and what happens when I cease to perceive them? Berkeley replies that God, and He alone, is the cause of my ideas. By the Divine agency, and not by any hidden inconceivable material substance, the permanence, regularity, and orderliness of the ideas are sustained. When I no longer think of *ideas* (material objects) they still endure in the Divine mind, and may be apprehended by other men. In Berkeley's system, then, there are held to exist minds or spiritual substances, ideas, and the Divine spirit.[4]

David Hume (1711—1776), similarly starting from Locke's principles, pushed Berkeley's Idealism to the most absolute scepticism. All cognitions, or all objects of cognition—for with these writers the terms are interchangeable—are reducible to *impressions* (sensations) and *ideas*, fainter copies of the former. To explain our *belief* in a permanent external reality, as well as to account for our other fundamental convictions, Hume appeals to the laws of the Association of Ideas. Through "custom" by the reiterated occurrence of various impressions we grow to believe in the enduring existence of material things when unperceived. Such belief is, however, an illusion; we only know the transient mental *impressions*. There is no such thing anywhere as an abiding *substance*, the substratum of changing qualities or accidents. We have no "impression" of it, therefore it does not exist. Berkeley got thus far as regards the notion of *material* substance; but Hume logically shows that by the same reasoning the idea of a *spiritual* substance, of a permanent mind amid changing states of consciousness is equally fictitious and unreal. The mind, just as well as the material world, is nothing more than a cluster of transitory impressions. The persuasion that *nothing can begin to exist without a cause* is also due to association. No single experience could give us the idea of *causation;* but the frequent repetition of two successive impressions so welds them together in our minds that we are deluded into the belief of some mysterious causal knot binding them, while there is really no connexion but that of *succession.* This illusory belief in particular instances of causality is afterwards gradually widened into the universal law, that every being which begins to exist presupposes a cause.

We have here all the essentials of later *associationism.* The substantial souls, retained by Berkeley, follow the material world of Locke, and the Divine Spirit also becomes a useless and inconceivable hypothesis. Hume, too, possessed the merit of realizing clearly and frankly admitting, what subsequent disciples of sensism either fail to see, or attempt to ignore, that the groundwork of physical science, and the certainty and exactness of mathematics are fatally destroyed by consistently following out the assumptions of the school. The conclusions of the Scotch sceptic thus constitute a complete *reductio ad absurdum* of Locke's principles.

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[4] Berkeley's theory may be objected to on various grounds, such as his equivocal use of the terms *idea* and *conceive*, and his unquestioning acceptance of Locke's assumption, but we have never seen any experiential argument which, strictly speaking, disproves the hypothesis of hyperphysical Idealism. God, without the intervention of a material world, could *potentiâ absolutâ* immediately produce in men's minds states like to those which they experience in the present order. The only demonstrative argument against the Theistic Immaterialist is, that such a hypothesis is in conflict with the attribute of veracity which he must ascribe to the Deity. God could not be the author of such a fraud.

J. Stuart Mill and Dr. Bain.—The chief modifications introduced into the general theory by more recent sensationalists, are the final dismissal of Berkeley's hypothesis of the Divine action, the greater importance assigned to the muscular sense, and a more elaborate attempt to harmonize the new conception of the external world with ordinary beliefs. However, the arguments are in the main similar in kind to those urged by the earlier advocates. Thus, it is asserted, that a world existing independently of the mind is *inconceivable.* "To perceive is an act of the mind. . . . To perceive a tree is a mental act; the tree is known as perceived and not in any other way There is no such thing known as a tree wholly detached from perception, and we can only speak of what we know." Consequently, the hypothesis of an external world existing when unperceived is absurd. "The prevailing doctrine is that a tree is something in itself apart from all perception; that by its luminous emanations it impresses our minds, and is then perceived, the *perception being the effect of an unperceived tree the cause.* But the tree is known only through perception: what it may be anterior to or independent of perception we cannot tell; we can think of it as perceived but not as unperceived. There is a manifest contradiction in the supposition, that we are required at the same moment to perceive the thing and *not* to perceive it."[5]

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[5] Dr Bain, *Mental Science*, pp 197, 198. In *Emotions and Will* (3rd Edit.), p. 578, he still denies that "the situation intimates anything *as an existence beyond consciousness.*" This argument in the hands of Dr. Bain, as in those of Berkeley, is based on a deceptive ambiguity in the terms "conceive" and "perceive" We cannot of course *perceive* an *unperceived* world nor can we *conceive* a world the *conception* of which is not in the mind; but there is no contradiction or absurdity in the proposition: "A material world of three dimensions has existed for a time unperceived and unthought of by any created being, and then revealed itself to human minds" Dr Bain's description of the "prevailing doctrine" is only applicable to the theory of mediate perception. It does not refer to Natural Realism, which makes the external material reality the *perceived* and not the *un*perceived cause of our cognitions

The chief strength, however, of the theory lies in the asserted sufficiency of the account which it professes to give of the material world apprehended by us. Assuming as self-evident the axiom that we can know only our own ideas, the external universe, it is alleged, really means to us nothing more than certain *sensations* plus *possibilities*[6] *of other sensations*. The most objective and real attributes of material things are in common belief their *extension* and *impenetrability*. Nevertheless, these properties, it is asserted, are ultimately reducible to groups of muscular feelings possible and actual. "The perception of matter, or the *object consciousness*, is connected with the putting forth of muscular energy as opposed to passive feelings. . . . Our object consciousness farther consists of the uniform connexion of Definite feelings with Definite energies. The effect that we call the interior of a room is in the final analysis a regular series of feelings of sense related to definite muscular energies. A movement one pace forward makes a distinct and definite change in the ocular impressions; a step backward exactly restores the previous impression. . . . All our so-called sensations are in this way related to movements. . . . On the other hand, what in opposition to sensations we call the flow of *ideas*—the truly mental or subjective life—has no connexion with our movements. We may remain still and think of the different views of a room, of a street, of a prospect in any order."[7]

The apparently independent world of every-day experience has not suddenly manifested itself to us after the manner of a transitory hallucination. It is a gradual growth, and it is in tracing the supposed genesis of this illusory belief that Mill best exhibited his psychological and metaphysical ingenuity. Starting with the postulates of expectation, the occurrence of impressions, and the laws of mental association, he professes to satisfactorily explain all our present convictions. We experience, he says, various *sensations*, such as those of colour, sound, and touch. After they have passed away we conceive them *as possible*. These feelings usually occur *in groups*, thus the consciousness of yellow is found in combination with certain sensations of contact, of smell, and of taste, which go to make up our perception of an orange.

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[6] It should be carefully borne in mind that in the associationist theory a "possibility of sensation" is not a real actual agent existing out of consciousness It is *as such*, non-existent. Its only existence is in the *idea* or *conception* by which future experiences are represented. Mill seems frequently to forget this

[7] *Mental Science*, pp 199, 200.

Similarly, visual feelings precede the tactual sensations which we have come in course of time to call the *table.* By association the groups of states become so knotted together that one of them by itself is able to awaken *in idea* the rest, and to suggest them to us as *possible* experiences. A material object is, in fact, to us at any time one or two *actual* feelings with the belief in a suite of others *as possible.* The actual impressions are *transient;* the possibilities are *permanent.* In addition to the feature of permanence and fixity among these groups of possible impressions there is the constant and regular order which we observe among them. By association this gives rise to the notions of causation, power, and activity; and we gradually come, on account of their permanent character, to look upon the groups of possible sensations as the *cause* of the actual feelings. Moreover, finding changes to take place among the possibilities of our impressions independently of our consciousness, we are led by abstraction to erect these possibilities into an entirely independent material world. This operation is completed by the discovery, that *other human beings* have an experience similar to our own, and ground their conduct on the same permanent possibilities as ourselves. Besides the apparent permanence and independence of the material world, its most striking contrast with our sensations lies in its *extension* and *impenetrability.* The latter property, however, is merely the feeling of muscular action impeded. *Space* is similarly an abstraction from motor feelings. Muscular sensations differing in duration "give us the consciousness of linear extension inasmuch as this is measured by a sweep of a limb moved by muscles. . . . The discrimination of length in any one direction includes *extension* in any direction." Not only is the idea of space derived from non-spatial feelings successive in time, but this mode, "in which we become aware of extension is affirmed by the psychologists in question *to be* extension." "We have no reason for believing that space or extension *in itself* is anything different from that by which we recognize it."[8] The synchronous character of space receives its completion from sight, which presents to us simultaneously a vast number of visual impressions associated with possibilities of motor and tactual feelings. Such is the empiricist theory of our belief in an independent material world.

Phenomenal Idealism as thus advocated has been attacked from many different points of view, but we can here afford space for only a few of the leading difficulties which seem to

[8] Mill's *Exam. of Hamilton* (2nd Edit.), pp. 223, 229, 230.

us absolutely fatal to the hypothesis. (1) In the first place, as we have already indicated, Idealism is incompatible not only with vulgar prejudices, but with the best established truths of science. Astronomy, Geology, Physical Optics, and the rest of the physical sciences, are inseparably bound up with the assumption that matter which is neither a *sensation* nor an *imaginary possibility of a sensation* exists apart from observation. They teach that real, actual, material bodies, of three dimensions, not only exist, but *act upon each other according to known laws* whilst no human mind is contemplating them. Possibilities enjoying no existence beyond consciousness could not attract each other with a force varying inversely as the square of the distance; they could not pass from green forests into coal beds, nor could they refract or interfere with other phenomena so as to determine the character of visual sensations independently of our wills. How, for instance, is the double discovery of the planet Neptune from the simultaneous but independent calculations by Adams, and Leverrier, to be explained, if there are not in the universe besides human minds extended agents which retain and exert their influence when unthought of by any created intelligence.

(2) This irreconcilability between physical science and phenomenal Idealism results in a very noteworthy case of *felo de se* in the hands of Dr. Bain. He commences his works on Empirical Psychology with an elaborate account of the brain, the nervous system, and the various sense-organs. Later on in the same volumes he resolves the material world, including, we presume, the aforesaid objects, into a collection of mental states. Finally, in his book on *Mind and Body*, he resolves the mind, that is, the total series of conscious states, into *subjective aspects* or *phases* of neural currents. Now obviously there is at least one absurdity here. What is the exact meaning of the statement that a mental state is but the subjective aspect of a nervous process, which is itself but a group of sensations? At one time the mind is alleged to be a function of the brain, and elsewhere the brain, with the rest of the physical universe, is analyzed into a plexus of muscular feelings incapable of existing beyond consciousness. These two mutually destructive tenets, Phenomenal Idealism and Physical Materialism, are the logical outcome of the sensist theory of cognition; but unfortunately disciples of that school do not usually reason out on both sides the consequences of their assumptions with the clearness and courage of Dr. Bain. The only subject for regret is that the latter writer neither attempts to reconcile the two repugnant

theses, nor frankly avows that they form a *reductio ad absurdum* of his theory.[9]

(3) Again, the primary assumption on which all phenomenalistic theories since the days of Locke have been based is false. That we can only know our own mental states, that we cannot apprehend material reality as affecting us is neither an *a priori* nor a self-evident truth, and still less can it be established from experience. The fact that we are unable to imagine *how* matter can act upon mind, or *how* mind can become immediately cognizant of something other than itself, is no objection against the clear testimony of consciousness, as manifested after the most careful introspection, that the mind does *immediately* perceive something other than itself acting upon it. Moreover, from this first illegitimate assumption flows the second error, that extension is *identical* with *that by which it is measured.* The *velocity* of a moving locomotive or of a flying swallow is not the same thing as its *force.* Now, our knowledge of extension may receive accurate definition and determination, mainly by means of the muscular sensations, and yet what we call the extension of objects may be not only something different from these sensations, but it may also be immediately apprehended in a less defined manner through some other senses.

(4) Further, we must deny *in toto* that sensations, muscular or any other, viewed in themselves as purely subjective non-spatial feelings, could ever by any process of addition or

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[9] The defence suggested by some writers, that the scientific psychologist is no more bound to give a metaphysical account of the materials with which he deals than the astronomer, or the geologist, is a mere shallow evasion of the difficulty. Psychology stands here in quite a different position from that of all the physical sciences. Its first duty is to furnish such an exposition of the nature of cognition as will secure an intelligible meaning to the terms employed in all sciences including itself, and assuredly it may not with impunity reduce its own statements to nonsensical absurdities. If it resolves neural currents into modifications of consciousness, it may not then turn round and resolve this consciousness into aspects of the aforesaid currents. If it does so, it is bound at all events to explain the precise significance of the outcome of this interesting dialectical feat. Mill's very just contention against Hamilton is very much to the point here. "When a thinker is compelled by one part of his philosophy to contradict another part, he cannot leave the conflicting assertions standing and throw the responsibility of his scrape on the arduousness of his subject; a *palpable self-contradiction* is not one of the difficulties which can be adjourned as belonging to a higher department of science." (*Exam.* pp. 122, 123.)

transformation be worked up into an apparently extra-menta world. It is only by the surreptitious introduction of extended elements that an extended product can be effected; and the great use made of the muscular sensations in the empiricist theory is due to the fact that the illicit transition from the asserted originally subjective signification of motor sensations to the objective meaning implied in ordinary beliefs is liable to escape notice. If these feelings are steadily remembered to be simple states of consciousness varying only in *duration* and *intensity*, it will be seen that they cannot, any more than sensations of sound or smell, "consolidate" into extended objects. Duration—serial length in time—belongs to *all* sensations, yet many of these afford no knowledge of space, much less constitute it. Sensations may also vary in intensity without evoking the notion of *velocity;* this latter cognition, in fact, presupposes the idea of space.

In all associationalist accounts of the genesis of our knowledge of an external world there is a continual equivocation between strictly *mental* existence and that which is *intra-organic* but not purely mental; between the signification of the terms describing the organism legitimate on *their* principles and the alleged erroneous meaning which these words convey to the *vulgar mind* Notwithstanding all lofty disclaimers to the contrary, sensationalists when tracing the gradual manufacture of the material universe out of simple states of consciousness, really do assume the existence of an extended organism, as known from the first. When Mr Bain, or Mr. Spencer, describes how muscular feelings, varying in duration and velocity, give rise to the belief in extended space, the explanation seems plausible because the reader almost inevitably passes from the subjective interpretation, which is all that is lawful to the writer, to the objective realistic meaning embodied in common language The phrases, "range of the arm," "sweep of a limb," and the like, employed by associationists in expounding the supposed origin of the notion of extension, necessarily suggest to the mind real extended objects known as such, and so conveniently hide the true difficulty. Commencing with a knowledge of our own body as extended, the development of our conviction of an independent material world might, perhaps, even on sensationist lines, proceed tolerably enough; but if our body and the rest of space are nothing more than sensations, and if the mind can only apprehend its own subjective feelings, then the first step is impossible. Successive muscular or tactual feelings in the interpretation of these sensations permissible to Mr. Spencer or Mill can no more account for the present appearance of extended objects than experiences of sound, of smell, or of toothache.

(5) The argument from the existence of *other minds* to which we have before alluded may also be here urged with peculiar force against Mill and Dr. Bain. Both of these writers lay stress upon the value of the testimony of other minds in establishing our belief in an independent world. Our knowledge, however, of other minds than our own is only gained by an inference from changes in certain portions of the physical world, assumed to have a real existence beyond our consciousness. Now if the chief premiss is invalidated, if it is demonstrated that we have, and can have no knowledge of anything external to our consciousness, that the seemingly independent human organisms around us are only modifications of our own mind, clusters of our muscular feelings actual and ideal, then assuredly it is an unworthy superstition to continue to put faith in the external existence of other minds, and still more ridiculous and absurd to invoke their testimony as a leading agency in the generation of our belief in the material world, including of course the bodies from which their existence is inferred.

(6) There remains another fundamental difficulty which goes to the very root of the sensationist philosophy. This genesis of *space* out of *time* necessarily implies, at all events, the existence of a *permanent* mind. Under the pressure of Dr. Ward's severe criticism, Mill was obliged in addition to his other assumptions to "postulate" memory. A mere succession of disconnected feelings could never give rise to the notion of *time*, and still less could the possibilities of such successive sensations be condensed by themselves into the simultaneity of space. But *memory* is precisely what the doctrine which reduces the mind to a *series of feelings* has no right to postulate. An abiding subject permanent among our changing states is an essential requisite for the existence of memory. If, however, the notion of time is impossible to the sensationalist, *a fortiori* is that of space.

Emanuel Kant (1724—1804).—A theory of perception equally erroneous with that of Hume's school, but starting from an almost diametrically opposite conception of the nature of the mind and of cognition, is that of Kant. Instead of explaining all mental products as complex results arising out of the aggregation, association, and coalescence of sensations passively received, Kant holds the mind to be endowed from the beginning with certain *a priori* or innate subjective "forms," by which all its experience is actively moulded or shaped. Among the most important of these are the two "intuitions" of *Space* and *Time.* The first is imposed on the acts of *external*, the second on those of *internal* sensibility. The sensations of our external senses are non-spatial in themselves, and they are awakened by a non-spatial cause. It is the subjective co-efficient that shapes the mental act so as to give rise to the perception by which we seem to apprehend extended objects outside of the mind. Similarly our mental states are presented to us by the *internal sense*—inner consciousness—as occurring in *time.* This, too, is an illusion due to a purely subjective factor in cognition. We have no reason for supposing that these states are not timeless *in themselves.* We can only know *phenomena*, or the appearances of things as shaped and coloured, by these subjective conditions; to *noumena*, or things-in-themselves, we can never penetrate. Still the existence of a *noumenon* beyond consciousness Kant maintains as requisite to account for our cognitive acts. He is thus a Hypothetical Dualist, denying an immediate apprehension of an external reality, but asserting its existence as a necessary supposition.

Deferring to a later chapter the examination of Kant's system as a whole, we may here indicate a few of the objections suggested against his treatment of the subject-matter at present under discussion. In the first place, it has been urged that Kant's attempted proof of the existence of *a priori* ingredients in all our knowledge is invalid. (*a*) "Space," he argues, "is not a conception which has been derived from outward experiences. For in order that certain sensations may relate to something without me . . . . and that I may represent them not merely without and near to each other, but also in separate places, the representation of space must exist as a foundation. Consequently, the representation of space cannot be borrowed from external phenomena through experience, but, on the contrary, this external experience is only possible through the said antecedent representation."[10] Space is, therefore, a purely subjective *a priori* form, inherent in the constitution of the mind, and imposed on the material element given in sensation.

This method of reasoning was employed by Plato to show that all knowledge is really innate. It sins by proving too much. If it were true that we could not apprehend an object as extended unless we had a previous representation of extension, then it would seem to follow that we could never cognize a taste, sound, or smell, unless we had antecedently a similar cognition of the nature of the taste, sound, or smell,

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[10] *Critique*, translated by Meiklejohn, p. 24

If there are in existence extended material bodies, and if we are endowed with the faculties of touch and sight, there is no reason why we should not immediately perceive the spatial qualities of these bodies when they act upon our senses. The perception may of course be at first vague, but frequent experience can perfect it.[11]

(*b*) "We never can imagine or make a representation to ourselves of the non-existence of space, though we may easily enough think that no objects are found in it. It must, therefore, be considered as the condition of the possibility of phenomena, and by no means as a determination dependent on them, and is a representation *a priori*, which necessarily supplies the basis for external phenomena." (p. 25.) This difficulty is solved by distinguishing between *actual* or *real* space, and *possible* or *ideal* space. The former is identical with the voluminal distance or interval enclosed by the surface-limits of the entire collection of created material objects, the latter is simply the possibility of extended objects. Now, although all material things were annihilated, the possibility of their existence, and therefore possible space, would remain. Consequently, having once apprehended the extension of existing bodies, we can never think them to be impossible, although we may abstract from their existence. The conception of ideal space, or the possibility of material bodies, is thus indestructible, not because it is merely a condition of thought, but because it is a condition of corporeal being.

(*c*) "Space is no discursive or, as we say, general conception of the relations of things, but a pure intuition. For, in the first place, we can only represent to ourselves *one* space, and when we talk of divers spaces we mean only parts of one and the same space. Moreover, these parts cannot antecede this one all-embracing space, as the component parts from which the aggregate can be made up, but can be cogitated only as existing in it." Again, (*d*) "Space is represented as an infinite given quantity." To these arguments we may again reply that a general conception of the relations of material things, or an abstract notion of the possibility of extended objects, may be formed from many perceptions of different parts of space. The fact that such an idea of possible space represents the latter as infinite, or rather indefinite, one, and all embracing, in no way proves that this representation is given *a priori.*

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[11] In maintaining that our developed knowledge of space is a result of experience, a distinction not always realized by Kant should be made between the *abstract concept* or *notion* of space in general and the *concrete perception* of an individual object *as extended*. The former is an elaborate intellectual product reached by abstraction, reflexion, and generalization, and presupposes many individual perceptions of concrete extension. The perception, on the other hand, is given, vaguely indeed at first yet truly, in the immediate experience of an extended surface affecting the sense of contact or of sight.

Kant further holds that the *necessity* and *universality* which characterize geometrical judgments establish the subjective origin of our cognition of space. This must be denied. Objects without the mind may have certain modes or relations of a contingent and others of a necessary nature. But if such were the case there can be no reason why the mind should be incapable of apprehending both with equal truth. The explanation put forward by Natural Realism is that there are certain essential and certain other accidental conditions of material being, and that these are reflected by necessary and contingent features in our thought. This is a simple and adequate account of the problem without the gratuitous assumption of innate forms.[12]

Still even were it true that our knowledge of external objects in no way represented them, the doctrine of Kant, that our apparent cognition of *our own mental states* as they are in-themselves is deceptive, would be erroneous. In this region, at least, the distinction between *phenomenal* knowledge and *noumenal* existence is utterly invalid. A conscious state cannot have any *existence-in-itself* apart from what it is apprehended to be. Its *esse* is *percipi.* Since, then, mental states are as they are apprehended, and since they are apprehended as successive, they must form a real succession *in-themselves.* They cannot be timeless as they are non-spatial. But if so Kant's "form of the internal sense"—the intuition of time—is extinguished. According to him time, like space, is merely a subjective condition of our internal consciousness imposed on realities timeless in themselves. As, however, there is a *real succession* in our ideas, there is a true correlate to the notion of time. A sequence of changes being once admitted in our conscious states, an analogous succession of alterations cannot be denied to the external reality which acts upon us, and so we are justified in maintaining the objective validity of the notion. The whole growth and evolution of each man's mental life, and its connexion with the development of his organic existence, affords the most cogent conceivable evidence of the real truth of the conception of time.

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[12] "Kant's fallacy may be put shortly—What is apodictic (necessary) is *a priori*, what is *a priori* is merely subjective (without relation to 'things-in-themselves'); therefore what is apodictic is merely subjective. The first premiss, however, is wrong if *a priori* is understood in the Kantian sense to mean being independent of *all* experience Kant wrongly believes that certitude to be possessed *a priori* (independently of all experience) which we really attain by a combination of many experiences with one another according to logical laws; and these laws are conditioned by the reference of the subject to the objective reality, and are not *a priori* forms. He erroneously maintains that all orderly arrangement (both in time and space, and that which is causal) is merely subjective." (Ueberweg's *Logic*, § 28.) Kant has nowhere shown the impossibility of *necessary relations* being disclosed to the mind in real objective experience.

Further, the arguments already put forward against Phenomenal Idealism show that neither space nor time can be a purely subjective *form*. Physics and astronomy, for instance, are irreconcilable with such a view. Thus, the latter science by a series of elaborate deductions from (*a*) abstract *geometrical* theorems dealing with the properties of *pure space*, and (*b*) *dynamical* laws describing the action of unperceived *forces* in an orderly manner in *time*, foretells a transit of Venus a century hence, and the result verifies the assumptions. Now the introduction of the second element is peculiarly incompatible with the alleged subjective nature of space. A consistent system of pure geometry might perhaps be worked out in such an *a priori* space, but there would be no reason why its theorems should exactly apply to the operations of extra-mental non-spatial agents. Accordingly, the orderliness of the universal force of gravitation, which varies inversely as the square of the *distance*, and produces regular movements in certain *intervals of time*, establishes agreement between the supposed mental forms and the reality beyond consciousness.[13] The physicist also teaches us that the external causes of our sensations of colour and sound are vibratory movements of ether (in extra-mental space) occurring in succession (in extra-mental time). He further informs us that the *quality* of the sensation is determined by the size and rapidity of these waves. Now this teaching is irreconcilable with the view that the supposed space and time are merely subjective forms of outer and inner sensibility. It implies that the so-called *noumena*, the extra-mental causes of our sensations of colour, occupy a real space of three dimensions, antecedent to and independent of the observation of the percipient mind.[14]

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[13] "Physical phenomena find throughout their most complete explanation in the supposition that things-in-themselves exist in a space of three dimensions as we know it It is at least very doubtful that any other supposition could be so brought into agreement with the facts. We have, therefore, every ground for believing that our conception of substances extended in space of three dimensions does not in some way *symbolize* things which exist in themselves in quite another way, but truly represents things as they actually exist in three dimensions." (Ueberweg's *Logic*, § 44, note.) The above line of argument is urged with great force both in Ueberweg's *Logic*, §§ 38—44, and in his *History of Philosophy*, Vol. II. pp. 160—166.

In addition to these objections a number of other defects in Kant's system have been exposed. He assumes without investigation the false representationalist theory in vogue since the times of Descartes and Locke, teaching that we have no immediate knowledge of things affecting us, but only of our own mental states. He illogically postulates an external *noumenal* world as the *cause* of our conscious states, whereas he has no ground for asserting its existence, especially since he teaches that *causality* is another deceptive intellectual form with no objective value. Finally, he is confused and inconsistent in expounding the nature of the supposed *a priori* forms, frequently appearing to conceive them as complete representations, ready made from the start and fitted with perfect accuracy on to the first act of perception, whilst at other times he seems to look on them as slowly and gradually realized with extended experience.

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[14] Some defenders of Kant assert that he never really intended to make space and time purely subjective, and Mr Mahaffy replies rather brusquely to Trendelenburg that Kant "never denied their objectivity unless in an absurd sense" (*Critical Philosophy*, p. 68.) Undoubtedly it is often very difficult to make out Kant's meaning, but if there is a single point on which he seems to be unmistakable it is that *space* and *time* are formal, or purely subjective. Whereas sensations of sound and colour are *given from without*, *space* and *time* he holds to be *subscribed from within*. "Space does not represent any *property of objects as things-in-themselves*, nor does it represent them *in their relations to each other*; in other words, space does not represent any determination of objects as attached to the objects themselves, and which would remain even though all subjective conditions of the intuition were abstracted. . . Space is nothing else than the *form* of all phenomena of the external sense, that is, the subjective condition of the sensibility under which alone external intuition is possible." (Cf. *Critique. Transcend. Æsth.* § 4.) Such passages could be multiplied indefinitely. It is a summary, but not very convincing disposal of opponents to simply assert that any other view of space than this is absurd. If it is still maintained that Kant allowed the existence of a *noumenal* space which suffices for the demands of science, then under the shadow of this obscure and elastic term we have admitted an extra-mental extension of three dimensions conditioning the unobserved causes of our sensations, and the chief contention of the *Transcendental Æsthetic* is abandoned.

Mr. Herbert Spencer, starting from the same assumptions as Hume and Mill, nevertheless rejects Idealism, substituting in its place a species of Hypothetical Dualism which he calls *Transfigured Realism.* With him, as with them, we can know nothing but our own feelings; yet he affirms that there is outside of the mind an *Unknowable Reality*, the objective cause of our sensations. But beyond the fact that such a noumenon *exists*, we can assert nothing of it. "What we are conscious of as properties of matter, even down to weight and resistance, are but subjective affections produced by objective agencies, which are unknown and unknowable."[15] His defence of this theory is based on an analysis of our mental operations akin to that of the older Associationists, supplemented by an argument against the Idealism of these writers extending over some nineteen chapters. The chief proofs which he urges against Idealism are these: (1) *Priority.*—In the history of the race, as well as in the history of every mind, "Realism is the primary conception," and Idealism is merely derived from and subsequent to the former. (2) *Simplicity.*—The chain of reasoning establishing Realism is simpler and shorter than that proving Idealism. The latter, too, depends on the former. (3) *Distinctness.*—The doctrine of Realism is presented in distinct and vivid terms, whilst Idealism can be apprehended only in a vague and obscure manner. (4) Realism is established by the criterion of the *Universal Postulate.* We must accept as true what we are obliged to think, and we cannot think away the existence of the objects which we perceive.

We can only touch on one or two points of this theory here. In the first place, though Mr. Spencer's arguments are undoubtedly valid against the idealist, they are not less efficacious against his own system. All the proofs from simplicity, priority, the application of the Universal Postulate, and the rest, tell equally in favour of *Natural Realism* against *Transfigured Realism* as expounded by himself. In the second place, Mr. Spencer's Transfigured Realism is little, if at all, fitter to meet the demands of science than Kant's non-spatial noumena or Mill's possibilities of sensation. Accordingly, for disproof of the new hypotheses, we refer the reader back to the arguments we have been just expounding. Physical science asserts much about the internal relations of the extra-mental causes of our sensations, which implies the existence of a real time, and of a space of three dimensions apart from our consciousness, yet truly mirrored by the features of that consciousness. Mr. Spencer's own statement, too, that there are variations in the modes of the asserted Unknowable corresponding to our consciousness of changes in space and time, abandons his most important tenet that we can know nothing about the Unknowable except its existence. The same difficulty which proved fatal to the theories of Mill and Kant tell equally against Mr. Spencer. Neither the assumptions nor conclusions of Physical Science can be confined within the territory of phenomena. The notions of "energy" and "force" lying at the root of mechanics and physics, and the laws of their action which science professes to expound, imply that the mind has a real valid knowledge of the supposed *noumenal* or *unknowable* causes of our sensations. Finally, Mr. Spencer's reduction of the material world, which we appear to perceive, into groups of feelings is based, like that of Hume and Dr. Bain, on the false assertion that we cannot have an immediate knowledge of external reality.

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[15] *Principles of Psychology*, § 472.

Readings.—The First Principles of Knowledge, by John Rickaby, Pt. II. c ii.; Dr. Mivart, *Nature and Thought*, c. iii, *On Truth*, cc vii—xi.; Dr Martineau, *A Study of Religion*, Vol. I pp 192—214; Hamilton, *Metaphysics*, Lect. xxv—xxviii, Professor Veitch's *Hamilton*, cc. v—vii; Dr. M'Cosh, *Exam of Mill*, cc. 6, 7; Ueberweg, *Logic*, §§ 37—44; R. Jardine, *The Elements of the Psychology of Cognition*, pp. 47—58, 125—148.

CHAPTER VII.

DEVELOPMENT OF SENSE-PERCEPTION: EDUCATION OF THE SENSES.

THE true account of our cognition of the external world is that which maintains the doctrine of *immediate perception*—that in some of its acts the mind directly apprehends a material reality other than itself; but there is no incompatibility between this theory and the admission that in the percipient acts of mature life there are involved many results gathered by association, and numerous mediate inferences of a more or less complicated nature. The advocate of immediate perception is not committed to the doctrine that the eye of itself immediately apprehends something presented to its view as a solid brick house situated at a hundred yards distance, nor that touch from the beginning makes known a particular sensation of pressure as due to a squeeze of the foot. The apparently simple cognitions which succeed each other from moment to moment in mature life, contain certain primary data which have been immediately presented to the senses; but a large fraction of the whole is, in most cases, built up out of contributions furnished by imagination and memory. The variety of the elements involved, and the plurality of the stages comprised in these brief acts of knowledge, have been dwelt on at copious length by many modern psychologists, and elaborate descriptions of the gradual development of apprehension by the "aggregation," "segregation," and "integration" of sensuous "ingredients" into the final product, the perceived thing, are very familiar to the reader of English philosophical literature. In spite, however, of the exhaustiveness of these analyses [one all-important factor is almost invariably omitted. *Intellect*, in its old and proper signification, as a higher rational activity superior to sense, awakened, indeed, to exercise by the latter, but transcending its range—Intellect, thus understood, is ignored. Yet it is precisely this faculty which makes intelligible the stream of change disclosed in sensation.]

[Sense can never penetrate beyond phenomena, its formal object is the concrete quality of the individual thing, and it is percipient of successive changes and co-existing accidents; but it cannot make known the *being* or *essence* of things; it is blind to the *causality* of agents, and to the *substantiality* of objects; and of those numerous *relations* of identity, similarity, unlikeness, dependence, and the rest, which form the universal framework, the rational tissue, of our knowledge, it can give no account.] A creature endowed merely with sensibility could never come to know itself as a person, to apprehend itself as an abiding *ego*, and to set itself in contrast and opposition to an objective world. Nor could it come to truly cognize any portion of the external universe, any more than itself as a *being*. Sense, it has been well said, can apprehend the "suchness"—the phenomena qualities—but not the *being*, the "isness" of things. Now in normal perception these sensuous and intellectual elements are closely interwoven, and it may require careful attention and reflexion to separate them; but none the less are they radically different in kind. As, however, the plan of our work requires us to treat of intellectual activity by itself, we will in the present chapter devote ourselves mainly to the exposition of the development of the sentient factor in the process, although, of course, in man's actual experience sense and intellect are not thus isolated.

Before beginning, an example may be useful to show the reader unfamiliar with psychological analysis, that seemingly simple perceptions are really complex. Walking in a field, I become suddenly conscious of a familiar sound, and exclaim, "I hear my big, white dog barking in the road on my right about eighty yards away." But a little reflexion will convince me that the sense of hearing contributes only a small share to such a percipient act. Of the distance, direction, size, and colour of the agent which has caused the noise, my ear of itself can tell me nothing. It merely presents to me an auditory sensation of a particular quality, and of greater or less intensity; the remaining elements of the cognition are reproductions of past experiences. Similarly in other cases, unnoticed inferences, and faint associations furnished by the rest of the senses, attaching to the direct testimony of each particular faculty, simulate after a time the character of immediate revelations of the latter. These indirect or inferential cognitions may be styled the *acquired perceptions* of the sense in question. It is the office of the psychologist to carefully analyze these into their primitive elements, to ascertain what are the ultimate data afforded by each sense, and to trace the chief steps in the process by which the elaborate result is reached.

DEVELOPMENT OF TACTUAL PERCEPTION.—Although in describing the general features of the different senses viewed as mental powers, the order of treatment adopted was unimportant, here in tracing the development of perception it is a matter of great moment to follow as closely as possible the natural order in which *de facto* the several faculties come to offer their contributions.[1] Accordingly we will commence with the *sense of touch,* including under it tactual sensations proper, feelings of pressure, and muscular sensations, whether of resistance or of movement. It seems to us a mistake in this connexion to endeavour to separate the consciousness of pressure from that of mere contact. The isolation is purely ideal. The difference between them is one of degree, and in the actual experience of the child sensations of touch, so far as they are of any psychological significance, involve feelings of pressure. The consciousness of resistance to active effort put forth, indeed, implies a new element, and facilitates the apprehension of something other than self given in the recipient sensation of passive pressure, but even this latter state makes us directly cognizant of extra-mental reality. Starting then with the *sense of touch,* naturally the first question which meets us is: How do we come to know the spatial relations of the several parts of our own person?

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[1] To start with perception by taste, smell, or hearing, or at all events to take any of these as the true type of external perception, is a complete inversion of what is actually given in nature, and may lead into serious philosophical error. These are precisely the faculties by which originally we do *not* obtain any direct perception of matter. They are wanting in the most important feature of that species of cognition which they are supposed to exemplify. They are originally of an almost purely subjective character, and are therefore but little better suited than imagination or memory to illustrate the manner in which we come to know the material universe. *Hearing*, employed not for the illustration of indirect or acquired perceptions, but as a typical representation of the perceptual process in general (Cf. Mr Sully, *Outlines*, pp 151, 152), misleads the reader into the belief that since by far the greater part of the information yielded by this faculty is of a mediate and inferential character, testifying only to possibilities of other forms of sensation, therefore *all* modes of perception are of a similarly subjective character, and no percipient faculty gives us a direct immediate presentation of extended matter. Hearing and smell exhibit abundantly the force of associated or acquired perceptions, but direct perception they do *not* illustrate.

In mature life we instantaneously localize an impression in the point of the body[2] irritated; and some writers maintain that the affirmation of consciousness is of such a character that this reference of a feeling to the part excited must be a natural endowment possessed from the beginning.

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[2] This seems true in the case of sensations of surface pressure, not so, however, as regards the organic sensations, or those of the other special senses. We project or externalize the cause of the auditory or visual sensation, but unless the impression is markedly painful we do not in mature life advert to the point of the organism affected by the stimuli of these senses. It is in fact the organic or tactual element involved in these sensations which enables us to localize them.

But what precisely is meant by saying, "I feel a pain in my foot"? The statement at once calls up a visual image of the member affected; and it further presents this image at about five feet in a nearly vertical line from my eyes. However, as distance cannot be directly apprehended by the eye, but is known primarily through muscular sensations of movement, and as the visual image of my foot is certainly not given in the painful feeling of pressure, the first consciousness of such a sensation could not have been similar to this. We are not born with an innate idea or representation of our person. Aristotle, long ago, taught that all knowledge starts from experience, and the topography of our own body is no exception to the rule. By observation and experiment, and not through any *a priori* endowment, we have come to learn the shape and appearance of our organism, and to know the definite locality on the visual map to which a particular tactual stimulation is to be referred.[3]

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[3] Dr. Gutberlet, who maintains the doctrine that an original local reference of a very vague character is attached to sensations of contact, summarizes the arguments against the extreme "nativistic" or *a priori* view: (1) We appear to localize impressions in parts of the body demonstrably incapable of sensations, *e.g.*, in our bones, teeth, hair, &c. (2) We also misinterpret the locus of known impressions, assigning them to wrong places, *e.g.*, pressure of the elbow is felt in the fingers, irritation of the brain is referred to the extremities. (3) Irritation of the stump of an amputated leg causes us to assign the sensation to the locality originally occupied by the lost limb. (4) We sometimes project sensations outside of the body, *e.g.*, the feeling of pressure to the end of a walking-stick or a pen. (5) The definiteness of localization varies considerably in different parts of the body, and decreases in proportion as the part affected is beyond the range of the eye and of the hand, *e.g.*, irritation in the back and within the organism. (*Die Psychologie*, pp. 60, 61.)

Tactual Cognition of the Organism.—Although the extreme "nativistic" theory is thus erroneous, exaggerated empiricism rushes into an equally false opinion when it refuses to admit the presence of any element of local reference, or any presentation of extension in our primitive sensations of contact. The true doctrine, as usual, lies between the extreme views. Impressions of extended objects are given from the beginning as extended, and bearing a local reference, but of an extremely vague and indefinite character. From the apprehension of purely unextended sensations the notion of extended matter cannot be formed, and in this respect the cognition of the spatial character of our own body stands in the same situation as the rest of the material world. The extended nature of the organ is given simultaneously with that of the extended surface pressing upon it, but as we have said, this primitive presentation is very ill-defined. Of the shape or quantity of the surface covered our knowledge is at first almost infinitesimal, whilst of the local relations between the point affected and the rest of our person we necessarily as yet know nothing. Nevertheless the character of an impression is largely dependent on its situation; the pressure, for instance, of the same object across the fingers, the palm, the fore-arm, on the head, and on the calf of the leg, possesses in each case a certain distinctive feature. Further, this variation in the aspect of the mental state is in proportion, though not in a constant proportion, to variation in locality. Thus, if the same stimulus be applied to two points on the arm, separated by a short interval, the sensations aroused will contain a certain difference of character, which will increase if the intermediate distance be increased; similarly with impressions on the fingers, though here change in the sensation is more rapid in proportion to variation of locality. Assuming the faculty of apprehending extended impressions over the surface of the body, and this "local colouring,"[4] which marks the sensibility of the different parts affected, if an object is moved along the skin from one locality to another, the capacity of the intermediate region for tactual sensations is discovered.

It is probably, however, the experience of *double contact*, which contributes most to the definition of the relative situation of the several parts of the organism. If a child lays his right hand upon his left there is awakened a double tactual feeling of extension. If he then moves the right palm along the left arm up to the elbow or shoulder he becomes conscious of a series of *muscular sensations* in the right arm, and also of a series of extended *tactual impressions* both in the right hand and along the left arm, which vary in character as they depart farther from the original sensation in the left hand. This movement may be then reversed and the tactual sensations gone through in the opposite direction; and finally by laying the left arm along a flat surface, or *vice versa,* the series of tactual impressions, formerly given in succession, will now be presented as co-existing outside of each other in space. When these or kindred experiments have been executed a few times, the difference in character of the tactual impressions on two points of the arm awaken by association a representation of the number of tactual sensations and of the duration of the series of muscular sensations required to span the interval, and their relative situations are so far defined.

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[4] The terms, *local sign*, and *local colour*, have been used by Lotze to designate a purely subjective quality varying with the part of the organism affected, and attached to the purely subjective non-spatial presentations of sense. These *local signs* become symbols of the muscular sensations of movement required to pass from one sensitive point to another, and by their means out of mental states, individually revealing no element of extension, the notion of space is alleged to be built up. Lotze thus advanced beyond the empiricism advocated by Dr Bain, Mill, and other English sensationalists, in admitting the necessity of more than mere tactual and muscular sensations. But the *local signs* cannot *generate*, though they may be of great value in *defining* our notion of space. A direct presentation of extension must be somehow afforded as material to work upon.

In this way a blind child would rapidly gather by experience a tolerably accurate knowledge of the configuration of its body, and of the relative positions of its varying forms of tactual sensibility. The localization of impressions would become more definite in the parts capable of being easily explored by means of sensations of double contact, while the outlying districts would be known in a less perfect way. Still, it is sight which, normally speaking, presents to us the rich realities of space. Apprehending in a simultaneous act a large space of the surface of the body, the eye far surpasses in efficiency the consciousness of double contact, while it supplements the latter experience as a third witness in a multitude of observations. As our education advances the visual image of the point of the organism stimulated becomes more intimately associated with the local colouring of the tactual sensibility of that point, and the map of the sense of touch is translated into that of sight.

Tactual Cognition of External Objects.—Together with progress in our knowledge of our own body proceeds our education as regards the material world outside; every increment of information in the one department is a corresponding gain in the other. Abstracting again from vision, when the child lays his hand flat on some object before him, suppose a book, he becomes conscious of an extended impression. By moving his hand he experiences two concomitant series of *tactual* and *motor* sensations. When he reaches the edge of the surface the tactual sensations cease, and then reversing the operation he may reproduce them in the opposite order. After a few such experiments, he would come to know in a rough way the number of units of tactual or motor sensations necessary to pass from the first to the last impression of contact, and he would thus have a measure of the *length* or *breadth* of the book. Suppose he then takes the volume between his two hands or fingers, he will discover that it presents several resisting surfaces, and some further experiments in the way of tactual and muscular feelings define his knowledge of its *solidity* and *weight.*

Here, again, as before, to the normally endowed being, the visual images presented by sight of the objects touched and handled enormously facilitate progress, and gradually enable him to infer the temperature, magnitude, solidity, and weight of things at a distance. This mode of education is going on in one shape or another every moment of his waking existence, and consequently his perception of the objects in his immediate vicinity very soon becomes tolerably accurate. The several members and parts of his own body permanently present as the centre of his pleasures and pains, and the subject of his sensations of double contact, are known to be very different from all other objects. These latter by their repeated recurrence to his notice in like circumstances, by the frequently confirmed experience that he can renew his acquaintance with them at will, and by their regularity in producing their effects, whether observed or unobserved, first evoke a dim belief, and then a rational conviction as to their abiding existence when beyond his view. Consequently, at a very early stage in his existence he becomes alive to the fact that his nurse, his bed, his food, and other objects of interest are not annihilated every time he closes his eyes.

We have spoken so far of the essential capabilities of touch: a word may be of interest now on the special or accidental acquirements of this percipient faculty. The degree to which the sense of touch can be cultivated, and the fineness of the capacity of both muscular and tactual sensations for being discriminated appear truly amazing when thoughtfully considered. The miller can by the sense of feeling distinguish variations in the quality of flour utterly invisible to the eye. The clothier can recognize subtile differences in the texture of silk, linen, or velvet, of an equally minute character. In such universal attainments as those of speaking, reading, writing, playing the piano, shaving, and indeed in all mechanical arts, the most delicate sensibility is exhibited. These actions involve a complicated series of movements under the guidance of muscular and tactual sensations which are distinguishable by differences so faint that we are fairly lost in astonishment at the infinitesimal forces governing thus infallibly the seemingly easy process.

It is in the blind, however, that this sense reaches its proper perfection. By them space is known and remembered solely in terms of tactual and motor experience. Their attention is concentrated on this field of cognition, and their powers of memory devoted to its service. The increased exercise and cultivation of the remaining senses when sight is in abeyance, has the effect of developing these faculties in an extraordinary manner, and none of them more so than that of touch. The blind, for instance, who have been taught to read, can decipher the contents by passing their fingers rapidly over type not much larger than the print of the present work, with a facility that seems incredible to their more fortunate brethren who make the attempt. Dr. Carpenter relates of Laura Bridgman, the well-known deaf and dumb mute, that she unhesitatingly recognized his brother "after the lapse of a year from his previous interview by the 'feel' of his hand."[6] She estimates the age and frame of mind of her visitors by feeling the wrinkles of their face, and it is said that she can even perceive variation in intensity and pitch of voice by feeling the throat.[6] John Metcalf, the celebrated blind road-maker, was deemed an excellent judge of horses. When a lad he was a favourite guide through the lanes and marshes of his native county. As a young man he followed the hounds on horse-back across country, and on one occasion won a a three mile race round a circular course. These latter feats, however, were performed rather by the sense of hearing than of touch. To guide him in the race, he placed a man with a bell at each post; and in the hunting-field the cry of the hounds, the intelligence of his horse, and his knowledge of the country enabled him to keep a leading place in the field.[7]

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[6] *Mental Physiology*, § 127

VISUAL PERCEPTION.—As the formal object of sight is merely coloured surface, the eye cannot originally inform us of distance. This faculty, even more than that of touch, has constituted a battle-ground for the "nativistic" and "empirical" theories. The more thoroughgoing *nativists* have held that the eye, or rather the visual organ consisting of both eyes, has from the beginning the power of immediately or intuitively apprehending the distance and relative situation of objects, just as well as the ability of perceiving differences of colour. Empiricists, on the other hand, deny to the eye all native capacity of cognizing extension in any form. According to their view, it is only by experience and association that ocular sensations, which in themselves bear no more reference to space than feelings of sound or smell, are gradually construed into extended solid objects. Here again, as before, it will be found that truth lies in the mean. The primary perception of the eye is simply *coloured surface*;[8] neither *distance*, *solidity*, nor *absolute magnitude* is originally presented to us by this sense. These are secondary or acquired perceptions, gained by associating in experience various shades of colour, and degrees of tension in the ocular muscles, with different motor and tactual experiences. Surface space, however, is originally perceived directly.

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[6] "Pressing thus on the throat of several persons successively, she sometimes sportively attempts to imitate their voice with her own in a way which shows that she does distinguish differences of both loudness and pitch (paradoxical as the language may be) without any conception or sensation whatever of sound." (Cf. *Mind*, 1879, pp. 166, 167.)

[7] Smiles, *Lives of Engineers*, Vol. I. p. 210.

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[8] The original presentation of superficial extension is very vague. The central point of the retina is most sensitive, and the shape of an external surface, *e.g.* of a triangle, is defined by moving the line of direct vision round its outline The relative situation of the parts subtending different points on the retina, and the intervals of space between them, vaguely presented by the quantity of intermediate distinct sentient points, similarly receive accurate determination by means of the muscular sensations involved in bringing the central axis of the eye to bear on them. In sight, as in touch, Lotze amends the empirical doctrine by the hypothesis of "local signs." Though the sensations of different points of the retina are qualitatively different, he holds that there is originally no presentation of extension. By association the qualitative mark of any spot awakens a representation of the quantity of muscular sensation requisite to direct the central point towards the object subtended by that spot, and this is all that spatial distance means Greater or less space is, in fact, merely the possibility of more or fewer muscular feelings. (Cf. *Metaphysic.* Book III. c. iv.) The recognition of a *local* character in sensation is again an improvement on the theory of Dr. Bain, but the fundamental difficulties to Idealism remain untouched.

The argument used to establish the direct perception of extension by D'Alembert, Hamilton, and others, has never been really answered. We will adopt Dr. Porter's enunciation of the proof: "If two or more bands of colour were present to the infant which had never exercised touch or movement, it must see them both at once; and if it sees them both, it must see them as expanded or extended; otherwise it could not see them at all, nor the line of transition or separation between them. Or if a disc of red were presented in the midst of and surrounded by a field of yellow or blue, or if a bright band of red were painted so as to return as a circle upon itself, on a field of black, the band could not be traced by the eye without requiring that the eye should contemplate as an extended percept the included surface or disc of red."[9]

This demonstration is reinforced by the direct evidence of a number of experiments tried on persons who had late in life been couched for cataract. The testimony from this line of investigation is unhappily not yet in as satisfactory a condition as could be desired. It is a significant comment on the lofty claims of some physiological psychologists to find that the experiments on Cheselden's patient still receive a leading place among the most recent text-books. In spite of the supposed enormous and fruitful advances of physiological psychology, that venerable and oft-recounted incident, now nearly one hundred and seventy years old, and claimed by both sides, is still amongst the least unsatisfactory cases we possess. The best experiment, however, on the whole, seems to be that of Dr. Franz, of Leipzig (1840). [In the operations of both Franz and Cheselden the subjects were intelligent boys of seventeen and eighteen years of age. When, after the cataract had been removed, the eyes of the patients were sufficiently healed to be exposed to the light, a series of observations and experiments were instituted in order to ascertain exactly how much they could directly perceive by their newly-received faculty.] The points of importance best established were: (1) that the newly-acquired sense presented to the mind a field of colour extended in two dimensions of space; (2) that it did not afford a perception of the relative distances of objects, all being apprehended in a confused manner as in close proximity to the eye; (3) and that, consequently, no information was given as to the absolute magnitude of things. (4) In Franz's case, where the investigation was more skilfully conducted than on the earlier occasion, the patient recognized the identity between horizontal and perpendicular lines now seen by the eye and those formerly known by touch. He could similarly recognize square and round figures, though he could not distinguish these from solid cubes and spheres.[10]

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[9] *The Human Intellect*, p. 155. Cf. also Balmez, *Fundamental Philosophy*, Book II. c. xii., and Hamilton, *Metaph* Vol II. pp. 165, 172. This argument i restated in an effective manner by Mr. Mahaffy, *The Critical Philosophy*, pp 115—121 It is no reply to say that the extent of colour perceived by a motionless eye is very small and its outline vague. This is true, though not to the extent that Mill and Dr. Bain would make out. It is conceded by them that the retina is extended, and that a small circle of colour can be originally apprehended by sight alone This admits at once the leading contention of the intuitive school. A circle of the one-tenth of an inch in diameter is as truly extended as the orbit of a planet, while no microscope can reveal space in a sound or an odour, and no summation of these latter sensations can result in a surface or a solid

Perception of Distance.—That the human eye has not originally the capacity of estimating distance is shown by such experiments as those just cited; and by the fact that in mature life in unusual circumstances, as for instance, at sea, we feel at a great loss when we attempt to judge the length of considerable intervals of space. The simple experiment of closing one eye, especially when entering an unfamiliar room, also shows how imperfect is our purely visual appreciation of distance. And the various illusions of painting, of the diorama, and of the stereoscope, all go to prove the truth that the apparently immediate apprehension of the third dimension of space by sight is really an acquired perception, which involves a rapid process of inference from numerous visual signs.

In developed perception there are engaged many factors whose presence and action are commonly ignored. Starting from an originally indefinite apprehension of extended coloured surface, we find that different perspective appearances, shades of colour, and degrees of tension in the ocular muscles are associated with longer or shorter distances to be moved through in order to touch the coloured object. After a sufficient number of experiences the visual appearance suggests the appropriate amount of movement, and the former becomes the symbol of the latter. The chief elements in the process seem to be the following: (1) *Focal adjustment.*[11] The single eye is subject to different muscular sensations according to the varying distance of the object up to an interval of twenty feet. This is due to the self-regulating action of the ciliary muscle, which increases or decreases the convexity of the crystalline lens so as to adjust the focus to a shorter or longer range. (2) *Axial adjustment.* The muscular sensations awakened by converging the axes of both eyes to meet in a point, vary according as the object is nearer or farther within a space of two hundred yards. (3) *Mathematical perspective.* The size of the retinal image and the apparent size of an object change with the distance of the latter; consequently, if its real magnitude is already known, we have the means of determining how remote it is. It is for this purpose the painter is accustomed to introduce the figure of a man or of some well-known animal into the foreground of his pictures. (4) *Aerial perspective.* Finally, changes of colour, and the greater or less haziness in the outlines of objects become by experience the signs of a longer or shorter intervals between them and us.

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[10] These two cases, and others of less value during the interval, are reported in the *Phil. Trans. of the Royal Society*. Dr. Carpenter, *Mental Physiology*, §§ 161 and 167, alludes to some other instances, and others again are cited by Helmholtz, but the two given above are among the best. A large portion of the account of Franz's case is transcribed from the *Phil. Trans.* 1841, into Mr. Mahaffy's *Critical Philosophy*, pp 122–133, and in briefer form into Dr. M'Cosh's *Exam. of Mill*, pp. 163–165. Hamilton's *Metaph.* Vol. II. pp. 177–179, contains the Cheselden case at length.

Our visual perception of the magnitude of an object is an inference from its apparent size and presumed distance, and most of the steps just given may enter into the estimate. Thus, in judging the height of an unfamiliar object, such as a rock, or a mound of earth afar off, we are led to form an idea of the length of space intervening by the number and apparent magnitude of known objects between us and the point in question, by the apparent size of other known figures, such as those of men or animals situated in its vicinity, and by the clearness or mistiness of the outlines of the object and of its neighbours.

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[11] Cf Le Conte, *Sight* Part II c v

The education of the sense of sight proceeds concomitantly with that of the faculty of tactual and motor sensations. Mutually aiding each other their progress is very rapid. The advantages gained by touch through the consciousness of double-contact are now largely increased by the addition of a power which can apprehend in an instant the entire contour of the body, and the situation of the various agents acting upon it. The length of the sweep of the arm or leg are known not merely in the dim terms of subjective motor feelings, but through the fine visual perceptions of space. The wide range of the eye, and those other numerous excellences which have been detailed in describing this sense, confer upon its acts the power of arousing with marvellous facility and speed the representation of associated tactual and muscular sensations. By this singularly perfect appropriation of the acquisitions of touch, vision is enabled to inform us in an easy, rapid, and admirable manner of a multitude of the tangible properties of things which we could never, or but by an incredible amount of labour, ascertain through actual contact. At the same time, the control of the organ of sight is secured by the ciliary muscles; and while we watch the movement of the arm, the muscular sensations of the eye reveal the quantity of change in its own direction, the degree of convergence of the optic axes, and the increase or decrease in the convexity of the crystalline lens. In this way by the mutual co-operation of the two faculties our knowledge of the most important attributes of matter is elaborated.[12]

AUDITORY PERCEPTION.—The ear gives us originally no knowledge of the spatial relations of the external world, nor even of the nature of the objective cause of the sensations of sound. Of the acquired perceptions of this faculty the most remarkable are the sense of the *direction* of a sounding body, and the sense of its *distance*. Both are due to association, and neither of them reach in man a very high degree of perfection. If while our eyes are closed a noise is produced near us by the concussion of two objects, such as keys, we shall find it almost impossible to localize the sound, especially when the experiment is performed above our head or near our feet. In mature life we estimate the distance of a familiar sound by means of its intensity. If it is of a rare character, such as that of thunder or of the explosion of gunpowder, we feel completely at a loss. The discrimination of direction is dependent on the difference in the effects produced in the two ears, and also on the variation in the character or intensity of the sound brought about by moving the head. An object on the right side makes a stronger impression on the right than on the left ear, and the sound is intensified by bringing the head or body to that side, or by setting the ear in a more direct line with the sonorous object. Hares and other animals endowed with large movable ears far surpass man in this respect. Careful cultivation may extend considerably the power of distinguishing faint sounds, and we find certain uncivilized tribes, as well as some species of the lower animals, in which this sense has been developed to a surprising degree as a means of ascertaining the advent of their foes or their prey. Its imperfection as an informant regarding space is partially redeemed by the fineness of its appreciation of time lengths, and to this quality its value not merely as the musical faculty, but as the instrument of social communication, is largely due.

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[12] Vision, unlike touch, taste, and smell, does not seem to be capable of much advance in range or refinement beyond what it normally reaches. The skill with which the Indian can follow a trail and the sailor recognize an object at sea seem among the most remarkable effects of special education of this sense. Unlike the other faculties, sight is normally developed almost up to its full maximum efficiency.

GUSTATORY AND OLFACTORY PERCEPTION.—Neither the sense of taste nor that of smell affords us originally an immediate perception of external reality. If we make the experiment of tasting a liquid of moderately sweet or sour flavour, which is at the same temperature as the organ, we shall find that even in mature life the resulting sensation is of a vague ill-defined character, and contains little more direct reference to the external world than a headache, or a general feeling of depression. In experience, however, special tastes have been found to be invariably excited by objects possessing particular tactual and visual qualities, and therefore the three classes of sensation come to be associated so that either may recall the others. By cultivation this faculty can be developed in a very surprising degree, and the expert can detect variations in the flavour of tea, wine, and other articles so faint as to be utterly imperceptible to the ordinary mortal. The first odours which assailed our nostrils probably awoke us up to an indefinite pleasurable or painful feeling, and to nothing more. But after a time we grew to associate certain smells with particular objects known by touch and sight, and as the higher activities of the mind unfolded themselves we began to apprehend the former as the *cause* of the latter. To the circumstance that this sense is stimulated by effluvia of distant bodies, much of its superiority to taste, both in point of refinement and of cognitional importance, is due. As revealing future gustatory experiences, and giving timely warning of poisonous or unwholesome food, olfactory perception becomes an instrument of considerable value. This faculty, like that of taste, is susceptible of a high degree of cultivation, and in the absence of some of the other senses it has reached a remarkable degree of acuteness.

The account we have just given of the gradual growth of perception obviates various difficulties urged against the doctrine of Natural Realism. Mr.

Bain, for instance, objects against Hamilton that the terms "external," "independent," and "reality" "are not simple and ultimate notions, but complex and derived," and consequently that "it is inadmissible to regard any proposition involving them as an ultimate fact of consciousness."[13] Undoubtedly these terms in ordinary language imply a variety of elements which it would be absurd to assert are all given in the "primitive unanalyzable dictum of consciousness." Accordingly, to maintain that the first sensation of pressure or sight revealed to the infant a material world as external, independent, and real, in the full significance of these words, would be as unjustifiable as to hold that the first glance at a triangle or circle presents to us all its geometrical properties. Starting from impressions of sight and touch which vaguely present to us extended reality other than our perceiving mind, our present well-defined knowledge of our own sentient organism, and of objects external to it, becomes gradually elaborated. The continuous existence of these realities when unperceived, which especially establishes their *independence* of the *Ego*, is guaranteed by memory, reflexion, and inference, and not by direct intuition. Finally, through the same means we learn to distinguish between the illusions of the imagination and the genuine deliverances of the external senses, and so come to comprehend the full meaning of *reality*.

The objection that we cannot have an immediate knowledge of an "external reality," that "it is

[13] *Mental Science*, p 122.

impossible to understand how the mind can be cognizant of a thing detached from itself,"[14] is equally futile. It is at least fully as impossible to understand how the mind can be cognizant of *itself*. *How* mind and body are united, *how* either can act upon the other, or indeed *how* any one thing can *move* another, are to our present faculties insoluble questions; but the *fact* that there is interaction cannot be denied any more than the growth of plants or the existence of gravitation, merely because we cannot imagine how such an event is possible. If the living body is informed and animated throughout its whole being by a spiritual soul, why should not the sentient organism so constituted be capable of responding to a material stimulus by an immediately percipient act? *A priori* dogmas as to what is or is not impossible are here out of place, especially in the hands of empiricists. To experience we must appeal, and this testifies that in sensations of pressure and sight we are immediately percipient of something other than our own mental states.

We have in the present chapter confined ourselves to the development of the sensuous factor in apprehension. During mature life, however, even the simplest acts of perception usually involve intellectual activity, and it is virtually as impossible to assign the exact date of the first awakening of rational cognition as it is to point to the birth of the primitive free volition. In both departments lower grades of consciousness, sentiency and spontaneity, precede as necessary conditions the higher forms of mental life;[15] and to the child during the years of early infancy the existence of the external world is given as an instinctive and indestructible belief, and its reality is for him little more than that of sensations and possibilities of sensations.

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[14] *Mental Science*, p. 209

It is through a confusion between the spontaneous faith embodied in the primitive percipient act and the rational conviction evoked in the developed consciousness by intellectual perception, that Reid and others were misled into describing our assurance of external reality as an *instinctive belief* irresistibly suggested by the sensation. *Instinctive belief* stands opposed to *intelligent cognition* as being blind and irrational. No grounds can be assigned for its existence, and no cogent reason can be adduced for its validity. The mere fact that a mental state of this character is indestructible does not alone afford it a sufficient philosophical guarantee, while the appearance of idealist philosophers would seem to imply that such a faith can at all events suffer temporary eclipse. But our knowledge of material objects is not of this kind. However blind and unintelligent may be the trust of the infant or the brute in an external world, developed cognition in man is essentially other than impulsive faith; and his certainty of a material universe, an assurance in which rational intuition, abstraction, reflexion, and inference are involved, and which is based on reasons as solid as those we have already advanced, is most erroneously described as an instinctive belief.

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[15] Dr. Porter very aptly remarks: "It is quite conceivable, as has been already suggested, that before those percepts (perceived things) and sensations (qualities apprehended by sensations) are connected under the relation of substance and attribute, they should be known as constant attendants, co-existent or successive, and that, simply as conjoined, the presence or the thought (*i.e.* sensuous image) of the one should, under the laws of association, suggest the thought of the other. It is under this relation that things and properties are known to the animal. It is obvious that the animal cannot and does not distinguish the relation of conjunction from that of causation. If he has experienced one sensation or sense-percept in connection with another, the repetition of the one brings up the image of the other, and the pain and pleasure, the hope and fear, which are appropriate to it. The dog connects with the whip in the hand of his master the thought (image) of chastisement and pain; with the sight of his gun or his walking-stick, the excitement of a ramble or of sport." (*The Human Intellect*, § 166.)

Binocular Vision.—A large district of the spatial scene apprehended by sight is common to both eyes, but the outskirts on either side extend beyond the binocular field of vision, and can be reached only by a single organ. In the perception of distant objects within the common field there is ordinarily formed on each of the retinas a similar picture, but things seen in our immediate neighbourhood offer a different appearance to the right and to the left eye. This fact has given rise to the *problem of single vision.* Why with two eyes do we not see two objects instead of one? Various explanations have been suggested. One view supposes that we originally saw double, but by experience have learned to assign the two images to a single cause. Another maintains that the two eyes form really but one organ. There are, it is held, "identical or corresponding points" on the two retinas, and pairs of nerves running from these to the brain coalesce, so that the two stimuli are fused into a single final excitation awakening but one sensation. Other writers have asserted that although the two eyes see different pictures yet, at any given time, we attend only to one.

As regards the last hypothesis it is undoubtedly true that one eye is commonly more active than the other, and most people will find that the right is more efficient than the left, still it is going beyond the evidence to assume that our attention is normally so concentrated upon the activity of one eye that the other may be thrown out of account. In favour of the second view may be urged the authority of several distinguished German physiologists starting with Müller fifty years ago, who consider the anatomical evidence to be on the whole in support of the physical explanation. It is also maintained that if the two retinas were really subjects of two distinct sensations, careful reflexion and examination of our consciousness ought to enable us to distinguish them. Finally, it is held that the analogy in the case of young animals constitutes a forcible argument. If the two eyes are co-ordinated so as to originate a single perception from the beginning in these latter, as is undoubtedly the case, it is reasonable to suppose, where there is no positive evidence to the contrary, that the same holds for the young infant.[16]

On the other side it is argued: (*a*) That more accurate knowledge of anatomy does not bear out the nativistic position. (*b*) That points physiologically not "corresponding" sometimes give rise to a *single* perception, whilst on other occasions points that ought to correspond excite *double* vision. In abnormal conditions, such as squinting, where the derangement is permanent, vision is single, in spite of the non-correspondence of identical points, and when the irregularity has been removed by surgical means, so that the two axes get into a normal position, double vision arises *for a time*, but by continued experience passes again into single vision. (*c*) Some writers contend that the "conflict or rivalry of the retinas," which takes place when the two eyes are made to contemplate different colours, is in favour of the empirical theory. If there was a real physical fusion of the nerve currents from the retinas to the brain, then we ought to have a sensation of an intermediate character and not alternative struggling sensations of each. A modification of this experiment, however, is held by others to support the nativistic theory.[17] (*d*) It is also urged that the illusion produced by the stereoscope, where two dissimilar pictures presented to the different eyes give rise to the perception of a single object, confirms the empirical theory.[18]

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[16] Mr. Spalding established intuitive perceptions in the case of chickens by covering their eyes with hoods as soon as they left the shell, and so preventing all visual experience until they were strong enough for various experiments. When the hoods were removed they immediately showed their appreciation of spatial relations. "Often at the end of two minutes," says Mr. Spalding, "they followed with their eyes the movements of crawling insects, turning their head with all the precision of an old fowl. In from two to fifteen minutes they pecked at some speck or insect, showing not merely an instinctive perception of distance, but an original ability to judge, to measure distance, with something like infallible accuracy. . . . They never missed by more than a hair's breadth, and that too, when the specks aimed at were no bigger, and less visible, than the small dot of an *i*." (Cf. *Macmillan's Magazine*, Feb. 1873.) He shows a similar power of intuitive perception to be possessed by young pigs and some other animals physically well developed at birth. This positive proof of the existence of intuitive apprehension of space of three dimensions demonstrates in a striking manner the absurdity of the implicit assumption in associationist accounts of the subject that immediate vision even of surface extension is *impossible*

On the whole that view seems to us to be nearest to the truth which, while admitting a certain degree of natural harmony in the structure of the two instruments, yet assigns to experience the development and perfection of binocular vision.[19]

The importance of binocular vision in the perception of solidity and distance is very great. The muscular tension involved in the convergence of the axes of the two eyes, and the dissimilarity in the two retinal impressions, confer an immense advantage on the double organ. Somewhat analogously to the case of the two hands in the sense of touch, and to the two ears in hearing, the twin members of the visual faculty, by means of their different standpoints, are enabled to bring forward valuable contributions of a new character. Moreover, though double-contact aids us by two distinct and separable experiences, while ordinarily in sight but one sensation is consciously realized, yet the effect of the second visual organ, whether due to experience or connate aptitude, is such that we obtain an instantaneous perception of the third dimension of space.[20]

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[17] Cf. Wyld, *Physics and Philosophy of the Senses*, pp. 226, 227.

[18] The stereoscope is an instrument, invented by Wheatstone, and improved by Brewster, in which slightly dissimilar pictures, such as would be presented to the right and left retinas by a neighbouring solid object, are simultaneously set separately each before the appropriate eye. The result is an irresistible conviction of a single solid object The empirical school hold this fact to establish that single vision is really an interpretation of two mental images attained by experience. Their opponents, however, would argue that though illusory in the present case, the single apprehension is due to native disposition and not merely to association.

[19] The reader interested in the question will find the empirical doctrine supported by Carpenter, op. cit. §§ 168—171, and Bernstein, *The Five Senses*, pp 128, seq. On the other side, cf. R. S. Wyld, op. cit pp. 221—227. P. Salis Sewis, *Della Conoscenza Sensitiva*, pp. 483—486, opposes the physiological explanation which he traces back to Galen *La Psychologie Allemande Contemporaine*, pp. 118—145, by M Ribot, gives an account of the dispute between Nativists and Empiricists in Germany. However, this book, which is written entirely from an empirical standpoint, is very unreliable.

PRIMARY AND SECONDARY QUALITIES OF MATTER.—Our knowledge of the smell, sound, taste, or temperature of an object differs widely in character from our cognition of its extension, figure, or number. The latter are called *primary*, the former *secondary qualities* of matter. The significance of this difference has played a prominent part in the history of the Philosophy of Perception in modern times, especially in England, but the distinction was clearly grasped in its most essential bearings by Aristotle and St. Thomas. Aristotle distinguished between "common" and "proper sensibles," and further between the latter in a state of formal actuality or energy (*ἐν ἐνεργείᾳ, in actu*), and in a dormant or potential condition[21] (*ἐν δυνάμει, in potentia*). The "proper sensibles' are the qualities in bodies which correspond to the specific energies of the several senses—colour, sound, odour, taste, temperature, and other special tactual qualities. Under the "common sensibles" were included extension, figure, motion, rest, and number. They are perceived through, but simultaneously with, the *sensibilia propria*, and by more senses than one. Moreover, the *sensibilia propria* do not exist in a state of *actuality* except when perceived, but only *virtually* as *dormant powers* of matter. To this latter most profoundly important distinction, erroneously imagined to be a discovery of modern philosophy, we will return again. Aristotle's doctrine on both points was adopted by St. Thomas,[22] who reduced the various forms of common sensibles to that of *quantity*. This was conceived to be the most fundamental attribute of matter, and the various qualities which give rise to the special sensations were looked upon as properties inhering in it. From this to the modern division into *primary* and *secondary* qualities the transition is obvious.

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[20] In addition to binocular vision, a second "anomaly" of sight is found in the perception of objects as *erect* while the image on the retina is *inverted* Some writers refuse to admit the existence of any special difficulty. We do not, they point out, see the retinal image but the object, and it is simply a law of our nature that an inverted image awakens the perception of an erect object. Others accentuate the fact that during the transmission of the retinal impression to the brain in the form of a neural tremor, the original spatial relations of the parts must be lost, and so there is no reason why the resulting mental state should redistribute them in their old position. The erection of the object will then be due either to innate disposition or acquired habit. Dr. Carpenter holds that "one of the most elementary of our visual cognitions is the *sense of direction*, whereby we recognize the relations of the points from which the rays issue and thus see the objects erect, though their pictures on the retina are inverted." (*Mental Physiology*, § 165) By this "extradition," rays of light falling from above or below will be referred back to their source. He appeals to the operations for cataract as confirming his view. The question is, however, of no great philosophical significance.

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[21] There was also another distinction recognized by the Peripatetic school, that of *sensibile per se* and *sensibile per accidens*. That is *sensibile per accidens* which is apprehended indirectly through being accidentally conjoined with something which is *sensibile per se;* and in this signification individual corporeal substances were said to be *sensibile per accidens*, "ut si dicimus quod Diarus vel Socrates est sensibile per accidens, quia *accidit* ei esse album." (St. Thomas, *De Anima*, Lib II. l. 13.) Both *sensibilia propria* and *sensibilia communia* were held to be *sensibilia per se;* the former, however, being classed as *per se primo vel proprie*, the latter as *per se secundo*. The several "*proper sensibles*" (per se primo), were defined to be the *formal object*, or appropriate stimulus of the different special senses. The "*common sensibles*" (sensibilia per se sed non proprie), extension, figure, &c., manifest themselves through, but simultaneously with. the *sensibilia propria*. They are thus not mediate acquisitions derived from the former, but forms of reality directly revealed through them

[22] Cf *Sum.* : q 78 a. 3 ad 2. and iii. q. 77. a. 2.

Descartes, between whom and Locke the credit of the discovery of the ancient distinction has been supposed to lie, taught that the attributes, Magnitude, Figure, Motion, Situation, Duration, and the like, are *clearly* perceived. We have an *idea* of them as they may be in the object. On the other hand Colour, Pain, Odour, Taste, *et cetera*, are not thus apprehended. We have only a confused and obscure knowledge of something or other in the external body which causes these sensations in us. Locke, who borrowed from Galileo the terms *Primary or Real* and *Secondary Qualities* to mark the old distinction between the *common* and *proper sensibles*, gives solidity, extension or bulk, figure, motion or rest, and number, as included in the first class. These attributes we cannot conceive as separable from matter, and, moreover, they are *like* the *ideas* by which we represent them. The secondary or imputed qualities, colours, sounds, tastes, smells, and the rest, are not essential to the idea of matter. Where present in bodies they exist merely as powers to produce sensations, properties emerging out of occult modifications of the primary attributes, and capable of awakening in us feelings in no way like themselves. Berkeley and Hume, proceeding from Locke's most fundamental doctrine that we can only know our own ideas, quickly demolished the distinction. Hume even demonstrated that, on Locke's principles, the primary qualities, extension, and the rest, are *less* real and objective than the secondary, for the former are merely complex subjective products elaborated out of the latter, and so the purest of mental fictions. In the Kantian philosophy, although the subject is not explicitly treated, the objective significance of the two groups is similarly reversed. As Space is an exclusively subjective form, while the sensations of smell, sound, *et cetera*, have some sort of an external correlate, however remote from them in kinship the latter would seem to be of a less purely ideal character.

Sir W. Hamilton from a psychological point of view distinguishes three classes: (1) *Primary* or *objective*, (2) *Secundo-primary* or *subjectivo-objective*, and (3) *Secondary* or *subjective* qualities.[28] The *primary* qualities include all the relations of matter to space whether as container or contained. These are (1) Extension, (2) Divisibility, (3) Size, (4) Density, (5) Figure, (6) Absolute Incompressibility, (7) Mobility, (8) Situation. These attributes are completely objective. They are percepts proper, implying no reference to sensation in their meaning, though involving sensation in their first apprehension. They are, he holds, absolutely essential to body; deprived of them matter is inconceivable. The *secundo-primary* qualities comprehend gravity, cohesion, repulsion, and inertia. Viewed as objective they are forces resisting our *locomotive faculty* or muscular energy. As subjective they are revealed through the varying affections of pressure in the sentient organism. Involving in their meaning these subjective sensations, they do not possess the objective independence of the primary qualities. They are, moreover, not essential to matter. The *secundary* qualities are not in propriety qualities of bodies at all. As apprehended they are only sensations which lead us to infer objective properties in the external thing. They are experienced as idiopathic affections of our organism, indefinite in number, and producible by a variety of stimuli. Besides the sensations of the special senses, Hamilton includes in this class a number of other feelings, such as shuddering, titillation, and sneezing. They are of course in no way essential to matter.[24]

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[28] These groups have been also styled the *geometrical, mechanical,* and *physiological* properties, and Mr. Herbert Spencer (*Principles of Psychology*, Pt. VI. cc. xi.—xiii.) still further enriches our already exuberantly wealthy terminology by the invention of the terms, *statical, statico-dynamical,* and *dynamical,* to mark substantially the same distinctions. In the *dynamical* or secondary attributes the external body is active, the mind is wholly passive. These qualities are objectively occult properties in virtue of which matter modifies the forces brought to bear on it, so as through these forces to awaken sensations. With the exception of taste, they act across a distance; they are accidents cognizable apart from the body, and manifested only incidentally. In experiences of the *statico-dynamical* kind, both subject and object are simultaneously agent and patient These attributes are known through some objective re-activity evoked by subjective activity. "In respect of its space (*statical*) attributes, body is altogether passive and the perception of it is wholly due to certain mental operations" Unlike the other attributes, "extension is cognizable through a wholly internal co-ordination of impressions; a process in which the extended object has no share."

Some distinctive features of the different groups previously recognized are here pointed out, but there are also some errors The mind is never purely passive, even in sensations like those of colour, taste, *et cet.*, the mental reaction is as real as the physical stimulation. Consequently the distinction between the *dynamical* and *statico-dynamical* fails. Mr. Spencer is right in holding that the *primary* are not the direct object of the special senses in the same manner as the *secondary* qualities. In the words of St Thomas the *sensibilia communia* do not constitute formal objects of individual senses. Still they are not, as Mr Spencer's exposition implies, purely subjective products, but forms of reality revealed through, yet concomitantly with, certain of the *proper sensibles* Surface extension *as such* does not of course stimulate the retina or the nerves of touch; it is made known in experiences of pressure and colour. Still it is not a mediate inference from the latter, nor a complex *integration* of unextended feelings of any kind Cognition of the third dimension of space results, as we have already described, from a reapplication of the same faculties in a new direction.

The recognition of the distinction in kind between the *primary* and the *secondary* qualities, or between the *common* and *proper sensibles,* is justified metaphysically by the more and less fundamental character of the two classes respectively, and psychologically by the numerous differences in the mode of their apprehension. Among these latter enough attention has not been directed to the ancient distinction based on the fact that *secondary* and *secundo-primary* qualities are disclosed only through a single sense, while the *primary* attributes are revealed through a plurality of independent sources. This circumstance, as well as their more intelligible nature, makes our cognition of them clearer, more convincing, and more comprehensive. The perfect identity of ratios subsisting between parts of space, *e.g.*, the relation of the side to the diagonal of the square, known through visual and tactual sensations, the mathematical power of the blind, and the recognition of circular and square figures by those just receiving sight for the first time, present an irresistible testimony to the reality of what is affirmed by such diverse witnesses. In addition to this, the manifestation of extension in the two different experiences of colour and pressure enables us to detach in a singularly perfect manner the common element, and so to form an abstract idea of extension, far surpassing in clearness those derived from any single sensuous channel.

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[24] As regards Hamilton's treatment of the subject: (1) There is no warrant either *metaphysical* or *psychological* for the intermediate class. On both grounds it belongs to the third. (2) It is absurd to speak of secondary qualities of matter as not being *properties of matter* at all, but merely conscious states. Hamilton, moreover, is peculiarly inconsistent in this respect, since he elsewhere holds that all our senses make us immediately cognizant of the non-ego

THE RELATIVITY OF KNOWLEDGE.—This expression has been used in a great variety of meanings. (1) The phrase *Relativity of Knowledge*, or rather the *Law* or *Principle of Relativity*, has been used to signify a leading tenet of Dr. Bain—that knowledge and feeling are possible only in transition, that we can know anything only by knowing it as distinguished from something else, that in fact all consciousness is of *difference*. This doctrine, however, is not that ordinarily intended when we speak of the *Relativity of Knowledge.* (2) The *Relativity of Knowledge* in its most important sense refers not to the nature of the relations between one known object and another, but to that between the known object and the knowing mind. All systems of philosophy which reject the doctrine of immediate perception of extended reality must maintain that our knowledge is relative to the mind in the sense that we can never know anything but our own subjective states. The most consistent thinkers, as we have already argued, are the idealists proper. They logically maintain that if we have no knowledge of anything beyond consciousness, it is unphilosophical to suppose that anything else exists. This thoroughgoing view is represented by Hume, and by Mill at times. The great majority of modern philosophers, however, shrinking back from this extreme, have adopted some intermediate position akin to that of Kant or Mr. Spencer. They maintain that while all our knowledge is relative to our own mental states, and in no way represents or reflects reality, yet there is *de facto* some sort of reality outside of our minds. Our imaginary cognitions of space, time, and causality are universal subjective illusions either inherited or elaborated by the mind; consequently, since these fictitious elements mould or blend with all our experience, we can have no knowledge of things in themselves, of *noumena*, of the absolute. But notwithstanding this, and in spite of the fact that the principle of causality has no more real validity than a continuous hallucination, these philosophers are curiously found to maintain the existence of a *cause*, and even of an external, non-mental cause of our sensations.

(3) Another, and what we maintain to be the true expression of the *Relativity of Knowledge*, and one which is in harmony with the theory of immediate or presentative perception, holds—(A) that we can only know as much as our faculties, limited in number and range, can reveal to us; (B) that these faculties can inform us of objects only so far, and according as the latter manifest themselves; (C) that accordingly (*a*) there may remain always an indefinite number of qualities which we do not know, and (*b*) what is known must be set in relation to the mind, and can only be known in such relation.[25]

So much relativity is necessarily involved in the very nature of knowledge, but it in no way destroys the worth of that knowledge. If knowledge is defined to imply a relation between the mind and the known object, and if the *noumenon* or *thing-in-itself* is defined to signify some real element of an object which never stands in any relation to our cognitive powers, then a knowledge of *noumena* or *things-in-themselves* is obviously an absurdity, and we must be satisfied with our existing capabilities.[26] But if by *noumena* are understood, as Kant on the one side, and sensationalists like Mr. Spencer on the other seem to mean, hypothetical external causes of our sensations, which yet somehow do not in any way reveal their character through these sensations, then we must, in the first place, deny the assumption that we can only know our own conscious states, and, in the second, we must point out the fundamental contradiction common to both schools of disputing the objective or real validity of the principle of causality, whilst in virtue of a surreptitious use of this rejected principle they affirm the reality of an unknowable noumenal cause.

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[25] What is given in one or more relations may necessarily implicate other relations, and these may subsist not merely between the mind and other objects, but between the several objects themselves. Still, mediate cognitions of this sort are knowledge only in so far as they are rationally connected with what is immediately given. Our knowledge of the mutual dynamical influence of two invisible planets, which faithfully reflects their reciprocal relations, is but an elaborate evolution of what is apprehended by sense and intellect in experiences where subject and object stand in immediate relations.

Admitting all knowledge to be relative in the third sense defined, there yet remain grades in the comparative perfection of cognitions gained through diverse channels; and here the distinctions both between sense and intellect, and between the primary and secondary qualities of matter, assume great importance. The doctrine that colours, sounds, and the other secondary qualities do not exist in objects as they are in the mind has been often cited as a modern psychological discovery. This, however, is a complete mistake. The wide difference which separates the *objective* or *material conditions* of sound, colour, and the rest from the corresponding *subjective consciousness* was, as clearly, and as firmly grasped by Aristotle, and St. Thomas, as by Locke, Hume, Kant, or Herbert Spencer. The acute minds of the sensationalists and sceptics of Ancient Greece had, in fact, raised in one form or another all the most forcible difficulties now urged by their modern representatives, and the Stagirite was necessarily led to answer them. He did this by pointing out the distinction between the *potential condition* and the *completed realization* of the secondary properties. Sound and colour *in apprehension* he describes as having reached their *full perfection*, *actuality*, or *energy*, whilst when unperceived they exist in the object merely in a *potential* or *virtual* state. In this stage he recognized them as simply powers capable of arousing sensation. He even called attention to the ambiguity arising from the frequent use of the same word—*e.g.*, "sound" or "taste," to designate both the *physical property* and the *mental state;* and he employs the two terms, *sonation* and *audition*, to bring out the difference. He thus successfully opposed the scepticism of the ancient empiricists, who denied all reality or differences of colours, sounds, and the rest apart from perception, by admitting their contention as regards the full realization of the qualities of matter, while refusing to allow its truth in reference to the potential conditions of these qualities. Neither light, nor sounds, nor odours would exist in their proper signification *as actualities* if all sentient beings were withdrawn from the universe; but they would still remain *as potencies* ready to emerge into life when the recipient faculty appeared. Aristotle's treatment of the subject was adopted and elucidated by St. Thomas, and we deem the matter of such importance that we cite a number of passages from both the Greek philosopher and his scholastic commentator below.[27]

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[26] "To speak of 'knowing,' 'things in themselves,' or 'things as they are,' is to talk of not simply an impossibility, but a contradiction; for these phrases are invented to denote what *is* in the sphere of *being* and *not in the sphere of thought;* and to suppose them *known* is *ipso facto* to take away this character. The relativity of cognition (*i.e.*, in the sense defined) imposes on us no forfeiture of privilege, no humiliation of pride; there is not any conceivable form of apprehension from which excludes us." (Cf. Martineau, *A Study of Religion*, Vol. I. p. 119.)

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[27] "Sensibilis autem actus et sensus idem est, et unus; esse autem ipsorum non idem. Dico autem ut sonus secundum actum, et auditus secundum actum. Contingit enim auditum habentia non audire, et habens sonum non semper sonat. *Cum autem operetur potens* (id quod potest) *audire, et sonet potens sonare, tunc* secundum actum *auditus* simul fit, et secundum actum *sonus*. Quorum dicet aliquis hoc quidem auditionem esse, hoc verum sonationem." (Aristotle, *De Anima*, Lib. III. Lect. 2.) "Sonativi (rei sonoræ) igitur actus, aut sonus aut sonatio est. Auditivi autem, aut auditus aut auditio est. Dupliciter enim auditus, et dupliciter sonus. *Eadem autem ratio est et in aliis sensibus et sensibilibus* . . . . sed in quibusdam nomina quoque sunt posita, ut *sonatio* ac *auditio;* in quibusdam caret alterum nomine; visio enim dicitur actus visus, at coloris (actus) nomine vacat, et

Through its secondary qualities, then, an object is known by any sense only as something capable of producing a particular sensation in me. The primary attributes are, however, of such a kind, and presented to us in such a manner, that our knowledge of them, even when limited to the range of the sensuous faculties, is of far superior importance to that which we possess of the *sensibilia propria.* In themselves the primary attributes consist of extensional determinations universal to matter, and independent of the nature of the sentient faculty. In relation to us the fact of their being revealed through the several channels of ocular, motor, and tactual sensations, gives our sensuous perception of them a clearness and distinctness far surpassing that of the *proper sensibles.*

But it is as affording material for *intellectual* knowledge that their true value is to be estimated. Disclosed through distinct channels the common presentation is

gustativi gustatio est, at saporis nomen non habet." (*id. ib.*) "Necesse est quod auditus dictus *secundum actum,* et sonus dictus *secundum actum,* simul salventur et corrumpantur; et similiter est de sapore et gustu, et aliis sensibilibus et sensibus. Sed si dicantur *secundum potentiam,* non necesse est quod simul corrumpantur et salventur. Ex hac autem ratione (Aristoteles) excludit opinionem antiquorum naturalium . . . dicens, quod priores naturales non bene dicebant in hoc, quia opinabantur nihil esse album, aut nigrum, nisi quando videtur; neque saporem esse, nisi quando gustatur; et similiter de aliis sensibilibus et sensibus. *Et quia non credebant esse alia entia, nisi sensibilia, neque aliam virtutem cognoscitivam, nisi sensum, credebant quod totum esse et veritas rerum esset in apparere.* Et ex hoc deducebantur ad credendum contradictoria simul esse vera, propter hoc quod diversi contradictoria opinantur. Dicebant autem *quodammodo recte et quodammodo non* Cum enim *dupliciter dicatur sensus et sensibile, scilicet secundum potentiam et secundum actum,* de sensu et sensibili *secundum actum* accedit quod ipsi dicebant quod non est sensibile sine sensu. Non autem hoc verum est de sensu et sensibili *secundum potentiam.* Sed ipsi loquebantur simpliciter, id est sine distinctione, de his quæ dicuntur multipliciter." (St. Thomas, *Comm. de Anima,* Lib. III. l. 2, ad finem) Previous to Hamilton, Aristotle's doctrine on these questions was utterly unknown in this country. In his *Notes on Reid,* pp. 826 830, Hamilton gives a very valuable historical account of the present subject; but as he does not notice there the *Commentary* of St. Thomas, no English writer seems to be aware of how clearly the problem was apprehended by the greatest of the schoolmen.

instinctively detached by the higher abstractive activity of the mind; and since it is thus given to us unobscured by any subjective affections of sensibility, it is perceived in a very perfect and comprehensive manner. Owing to this fact our simplest intellectual cognitions of spatial relations are enabled to image with distinctness and lucidity the most fundamental laws of the physical world. Finally, by observation, reasoning, and abstraction we come to discern in these primary attributes universal extensional relations conditioning the mutual connexion and interdependence of material objects apart from their perception by the knowing spirit. We are assured that, although the realization of the secondary qualities requires the presence of the sentient faculty, yet the most important part of the meaning of the primary attributes holds in its absence: we see that while perception is essential to the one, it is accidental to the other. Remote and complicated deductions from a few primary luminous intuitions of space and number, together with certain assumptions as to the action of real force, are found to accurately describe the future conduct of the universe. Astronomy and Physics, the Law of Gravitation as well as the Undulatory Theory of light, imply the extra-mental validity of our notions of space, motion, and real energies, and assume their existence and action apart from observation. The verification which subsequently observed results afford to our reasoned deductions must, consequently, be held to establish that these conceptions are neither "integrations" of purely subjective feelings, nor mental "forms," which in no way represent the hypothetical, unknowable, external *noumenon*, but true cognitions which mirror in a veracious manner the genuine conditions of real or ontological being. Our knowledge, then, of the primary attributes does not relate exclusively to our own mental states, as is asserted in the prevalent creed of relativity. Still in the case of these, as well as of the secondary qualities, we can never know the object unless in so far as it reveals itself directly or indirectly to our faculties, and in the simplest creature there will always remain beyond our ken an indefinite number of secrets which a higher intelligence might scrutinize, so that the perfection, range, and penetration of knowledge is, in truth, ever relative to the knowing mind.

Readings.—For an analysis of sense-perception and a defence of Immediate Perception, cf. Père Chabin's *Cours de Philosophie*, c. 2; also Dr. Porter, *The Human Intellect*, Pt. I. cc. iii.—vi.; Balmez, *Fundamental Philosophy*, Vol. I. pp. 267—324, 339—360 On the localization of sensations, cf. Gutberlet, op. cit. pp. 59—84; On the Primary and Secondary Qualities of Matter, cf. St Thomas, *De Anima*, II l. 13; Hamilton, *Metaph.* II 108—115; *Notes on Reid*, pp 825, seq. On Relativity of Knowledge, St. Thomas, *De Anima*, III l. 2; Martineau, *A Study of Religion*, Bk. I. c. iv.; M'Cosh, *Exam of Mill*, c. x. and *Intuitions of Mind*, pp. 340, seq. (2nd Edit); Dr Mivart, *On Truth*, c. x.

CHAPTER VIII.

THE INTERNAL SENSES.

In addition to those sensuous faculties by which we are enabled to perceive external objects, the mind is endowed with the capability of apprehending in a sensuous manner, facts of a subjective order. This power or group of powers constitutes those modes of mental life styled by the schoolmen the *Internal Senses.* The Aristotelian doctrine elaborated by the mediæval thinkers distinguishes four such faculties, the *sensus communis,* the *vis æstimativa* or *vis cogitativa,* the *imagination,* and the *sensuous memory.* They were termed senses, or organic powers, because they operate by means of a material organ, and have for their formal objects individual, concrete, sensuous facts. The word *internal* marks their subjective character, and the interior situation of the physical machinery of their operations.

The *sensus communis* or common sense has also been styled *the internal* sense, and the *central* sense. It has been described by St. Thomas, after Aristotle, as at once the source and the terminus of the special senses. By this faculty we are conscious of the operations of the external sensuous faculties, and we are made aware of differences between them, though we cannot by its means cognize them *as different.* Apart then from intellect, by which we formally compare and discriminate between objects, some central sense or internal form of sensibility is required, both in the case of man and of the lower animals, to account for the complete working of sensuous life. In the growth and development of sense-perception described in the previous chapter, the action of this internal form of sensuous consciousness is implied. Antecedent to, and independent of intellectual activity, the revelations of the several senses must be combined by some central faculty of the sensuous order, and it is this interior aptitude which has been called the *sensus communis.*[1]

The *vis æstimativa*, or sensuous judicial faculty, was a name attributed to those complex forms of sensuous activity by which an object was apprehended as fit or unfit to satisfy the needs of animal nature. It thus denotes that capability in the lower animals which is commonly described as instinct. The term *vis cogitativa* was sometimes employed to designate the aptitude for analogous operations in man, at other times to signify a certain mode of internal sensibility operating concurrently with the intellect in the perception of individual objects.[2]

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[1] It has been held by St. Augustine, St. Thomas (cf. *Sum* 1 q 78. a. 4. ad 2. and 87. 3. 3), and other philosophers, that no sense can know its own states, and that, not merely for the co-ordination of the different senses, but for the cognition of any single sensation, an internal faculty in addition to the special sense is requisite. Aristotle (*De Anima*, III. l. 2) decides against this view on the intelligible ground that such a doctrine would involve an infinite series of sensuous faculties. Elsewhere however, (*De Somno et Vigilia*, l. 2), he appears to adopt the contrary theory Suarez argues cogently against this multiplication of faculties as unnecessary, and his teaching appears to us sound. No sense can have a *reflex* knowledge of its own states, but this does not prevent a sense from having concomitantly with the apprehension of something affecting it an implicit consciousness of its own modifications. A being endowed with the sense of touch or hearing ought to be conscious, it would seem, of auditory or tactual sensations without the instrumentality of any additional faculty (Cf. Suarez, *De Anima*, Lib. III. c. ii. and Lahousse, op. cit pp. 160 – 163.)

The term *sentimento fondamentale*, or fundamental feeling, was employed by Rosmini to denote an assumed faculty, or form of sensuous consciousness, by which the soul is continually cognizant of the body in which it is present.[3] The soul, and not the living being composed of both soul and body, is the true principle of this feeling. It is by their modification of the *sentimento fondamentale* that the impressions of the special senses reveal themselves to the soul. The fundamental feeling, unlike the *sensus communis* of the scholastics, is held to have been ever in a condition of activity, even antecedent to the exercise of the special senses. "It begins with our life, and goes on continuously to the end of it." Nevertheless it is rarely adverted to, and considerable power of psychological reflection may be required to discover its existence. By this feeling we have a *subjective* perception of our organism; through sight and touch, on the other hand, we apprehend it in an *extra-subjective* manner. Finally, the union of soul and body consists in an immanent perception of the activity of this faculty.

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[2] It was urged that intellect, the formal object of which is the *universal*, cannot *directly* apprehend individual substances *as such*. Nevertheless, we have intellectual knowledge of them, for we form singular judgments, *e.g.*: "This plant is a rose," "Peter is a negro." Consequently, it was inferred, there is a special form of internal sensibility through which the concrete object is so apprehended that by reflexion upon this sensuous presentation the intellect can cognize the singular nature of the object. St. Thomas thus describes the operation: "Anima conjuncta corpori per intellectum cognoscit singulare, non quidem directe, sed per quandam reflexionem, in quantum scil, ex hoc, quod apprehendit suum intelligibile, revertitur ad considerandum suum actum et speciem intelligibilem, quæ est principium ejus operationis, et ejus speciei originem, et sic venit in considerationem phantasmatum et singularium quorum sunt phantasmata. *Sed hæc reflexio compleri non potest, nisi per adjunctionem virtutis cogitativæ et imaginativæ.*" (*Q. Un. de Anima*, a. 20, ad 1.)

[3] "By the *fundamental feeling* of life we feel all the sensitive parts of our body." (*The Origin of Ideas*, Eng. Trans. § 705)

Tongiorgi uses the term *sensus fundamentalis* in a kindred meaning to denote an inferior form of the *sensus intimus*. By the *sensus intimus,* he understands a perpetual consciousness both of its own substantial existence and of its acts, with which he maintains the soul to be endowed. This actual cognizance of itself is essential to the soul and independent of all special mental modifications. It is, moreover, *natura* if not *tempore* antecedent to them; yet, as the soul exists always in some particular state, it can never apprehend itself unless as determined by an individual affection. The *sensus intimus* exerts itself in a higher and a lower form, as rational, and as sensuous consciousness. By the inferior order of activity the soul continuously feels its presence in the body which it informs, and thus apprehends the various impressions which occur in different parts of the organism. This sensuous cognizance of the body he styles the *sensus fundamentalis,* inasmuch as it is the common root or principle of the external senses.[4]

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[4] St. Thomas applies the term *sensus fundamentalis* to the faculty of *touch*. The *sensus fundamentalis*, as described by Rosmini and

extinguished. According to him time, like space, is merely a subjective condition of our internal consciousness imposed on realities timeless in themselves. As, however, there is a *real succession* in our ideas, there is a true correlate to the notion of time. A sequence of changes being once admitted in our conscious states, an analogous succession of alterations cannot be denied to the external reality which acts upon us, and so we are justified in maintaining the objective validity of the notion. The whole growth and evolution of each man's mental life, and its connexion with the development of his organic existence, affords the most cogent conceivable evidence of the real truth of the conception of time.

Further, the arguments already put forward against Phenomenal Idealism show that neither space nor time can be a purely subjective *form*. Physics and astronomy, for instance, are irreconcilable with such a view. Thus, the latter science by a series of elaborate deductions from (*a*) abstract *geometrical* theorems dealing with the properties of *pure space*, and (*b*) *dynamical* laws describing the action of unperceived *forces* in an orderly manner in *time*, foretells a transit of Venus a century hence, and the result verifies the assumptions. Now the introduction of the second element is peculiarly incompatible with the alleged subjective nature of space. A consistent system of pure geometry might perhaps be worked out in such an *a priori* space, but there would be no reason why its theorems should exactly apply to the operations of extra-mental non-spatial agents. Accordingly, the orderliness of the universal force of gravitation, which varies inversely as the square of the *distance*, and produces regular movements in certain *intervals of time*, establishes agreement between the supposed mental forms and the reality beyond consciousness.[13] The physicist also teaches us that the external causes of our sensations of colour and sound are vibratory movements of ether (in extra-mental space) occurring in succession (in extra-mental time). He further informs us that the *quality* of the sensation is determined by the size and rapidity of these waves. Now this teaching is irreconcilable with the view that the supposed space and time are merely subjective forms of outer and inner sensibility. It implies that the so-called *noumena*, the extra-mental causes of our sensations of colour, occupy a real space of three dimensions, antecedent to and independent of the observation of the percipient mind.[14]

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[13] "Physical phenomena find throughout their most complete explanation in the supposition that things-in-themselves exist in a space of three dimensions as we know it It is at least very doubtful that any other supposition could be so brought into agreement with the facts. We have, therefore, every ground for believing that our conception of substances extended in space of three dimensions does not in some way *symbolize* things which exist in themselves in quite another way, but truly represents things as they actually exist in three dimensions." (Ueberweg's *Logic*, § 44, note.) The above line of argument is urged with great force both in Ueberweg's *Logic*, §§ 38—44, and in his *History of Philosophy*, Vol. II pp. 160—166.

In addition to these objections a number of other defects in Kant's system have been exposed. He assumes without investigation the false representationalist theory in vogue since the times of Descartes and Locke, teaching that we have no immediate knowledge of things affecting us, but only of our own mental states. He illogically postulates an external *noumenal* world as the *cause* of our conscious states, whereas he has no ground for asserting its existence, especially since he teaches that *causality* is another deceptive intellectual form with no objective value. Finally, he is confused and inconsistent in expounding the nature of the supposed *a priori* forms, frequently appearing to conceive them as complete representations, ready made from the start and fitted with perfect accuracy on to the first act of perception, whilst at other times he seems to look on them as slowly and gradually realized with extended experience.

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[14] Some defenders of Kant assert that he never really intended to make space and time purely subjective, and Mr Mahaffy replies rather brusquely to Trendelenburg that Kant "never denied their objectivity unless in an absurd sense" (*Critical Philosophy*, p. 68.) Undoubtedly it is often very difficult to make out Kant's meaning, but if there is a single point on which he seems to be unmistakable it is that *space* and *time* are formal, or purely subjective Whereas sensations of sound and colour are *given from without*, *space* and *time* he holds to be *subscribed from within*. "Space does not represent any *property of objects as things-in-themselves*, nor does it represent them *in their relations to each other*; in other words, space does not represent any determination of objects as attached to the objects themselves, and which would remain even though all subjective conditions of the intuition were abstracted. . . . Space is nothing else than the *form* of all phenomena of the external sense, that is, the subjective condition of the sensibility under which alone external intuition is possible." (Cf. *Critique. Transcend. Æsth* § 4) Such passages could be multiplied indefinitely. It is a summary, but not very convincing disposal of opponents to simply assert that any other view of space than this is absurd. If it is still maintained that Kant allowed the existence of a *noumenal* space which suffices for the demands of science, then under the shadow of this obscure and elastic term we have admitted an extra-mental extension of three dimensions conditioning the unobserved causes of our sensations, and the chief contention of the *Transcendental Æsthetic* is abandoned

Mr. Herbert Spencer, starting from the same assumptions as Hume and Mill, nevertheless rejects Idealism, substituting in its place a species of Hypothetical Dualism which he calls *Transfigured Realism*. With him, as with them, we can know nothing but our own feelings; yet he affirms that there is outside of the mind an *Unknowable Reality*, the objective cause of our sensations. But beyond the fact that such a noumenon *exists*, we can assert nothing of it. "What we are conscious of as properties of matter, even down to weight and resistance, are but subjective affections produced by objective agencies, which are unknown and unknowable."[15] His defence of this theory is based on an analysis of our mental operations akin to that of the older Associationists, supplemented by an argument against the Idealism of these writers extending over some nineteen chapters. The chief proofs which he urges against Idealism are these: (1) *Priority*.—In the history of the race, as well as in the history of every mind, "Realism is the primary conception," and Idealism is merely derived from and subsequent to the former. (2) *Simplicity*.—The chain of reasoning establishing Realism is simpler and shorter than that proving Idealism. The latter, too, depends on the former. (3) *Distinctness*.—The doctrine of Realism is presented in distinct and vivid terms, whilst Idealism can be apprehended only in a vague and obscure manner. (4) Realism is established by the criterion of the *Universal Postulate*. We must accept as true what we are obliged to think, and we cannot think away the existence of the objects which we perceive.

We can only touch on one or two points of this theory here. In the first place, though Mr. Spencer's arguments are undoubtedly valid against the idealist, they are not less efficacious against his own system. All the proofs from simplicity, priority, the application of the Universal Postulate, and the rest, tell equally in favour of *Natural Realism* against *Transfigured Realism* as expounded by himself. In the second place, Mr. Spencer's Transfigured Realism is little, if at all, fitter to meet the demands of science than Kant's non-spatial noumena or Mill's possibilities of sensation. Accordingly, for disproof of the new hypotheses, we refer the reader back to the arguments we have been just expounding. Physical science asserts much about the internal relations of the extra-mental causes of our sensations, which implies the existence of a real time, and of a space of three dimensions apart from our consciousness, yet truly mirrored by the features of that consciousness. Mr. Spencer's own statement, too, that there are variations in the modes of the asserted Unknowable corresponding to our consciousness of changes in space and time, abandons his most important tenet that we can know nothing about the Unknowable except its existence. The same difficulty which proved fatal to the theories of Mill and Kant tell equally against Mr. Spencer. Neither the assumptions nor conclusions of Physical Science can be confined within the territory of phenomena. The notions of "energy" and "force" lying at the root of mechanics and physics, and the laws of their action which science professes to expound, imply that the mind has a real valid knowledge of the supposed *noumenal* or *unknowable* causes of our sensations. Finally, Mr. Spencer's reduction of the material world, which we appear to perceive, into groups of feelings is based, like that of Hume and Dr. Bain, on the false assertion that we cannot have an immediate knowledge of external reality.

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[15] *Principles of Psychology*, § 472.

Readings.—The First Principles of Knowledge, by John Rickaby, Pt. II, c ii.; Dr. Mivart, *Nature and Thought*, c. iii.; *On Truth*, cc vii.—xi.; Dr. Martineau, *A Study of Religion*, Vol. I. pp 192—214; Hamilton, *Metaphysics*, Lect. xxv—xxviii; Professor Veitch's *Hamilton*, cc. v.—vii.; Dr. M'Cosh, *Exam of Mill*, cc. 6, 7; Ueberweg, *Logic*, §§ 37—44; R Jardine, *The Elements of the Psychology of Cognition*, pp. 47—58, 125—148.

CHAPTER VII.

DEVELOPMENT OF SENSE-PERCEPTION: EDUCATION OF THE SENSES.

THE true account of our cognition of the external world is that which maintains the doctrine of *immediate perception*—that in some of its acts the mind directly apprehends a material reality other than itself; but there is no incompatibility between this theory and the admission that in the percipient acts of mature life there are involved many results gathered by association, and numerous mediate inferences of a more or less complicated nature. The advocate of immediate perception is not committed to the doctrine that the eye of itself immediately apprehends something presented to its view as a solid brick house situated at a hundred yards distance, nor that touch from the beginning makes known a particular sensation of pressure as due to a squeeze of the foot. The apparently simple cognitions which succeed each other from moment to moment in mature life, contain certain primary data which have been immediately presented to the senses; but a large fraction of the whole is, in most cases, built up out of contributions furnished by imagination and memory. The variety of the elements involved, and the plurality of the stages comprised in these brief acts of knowledge, have been dwelt on at copious length by many modern psychologists, and elaborate descriptions of the gradual development of apprehension by the "aggregation," "segregation," and "integration" of sensuous "ingredients" into the final product, the perceived thing, are very familiar to the reader of English philosophical literature. In spite, however, of the exhaustiveness of these analyses one all-important factor is almost invariably omitted. *Intellect*, in its old and proper signification, as a higher rational activity superior to sense, awakened, indeed, to exercise by the latter, but transcending its range—Intellect, thus understood, is ignored. Yet it is precisely this faculty which makes intelligible the stream of change disclosed in sensation.

Sense can never penetrate beyond phenomena, its formal object is the concrete quality of the individual thing, and it is percipient of successive changes and co-existing accidents; but it cannot make known the *being* or *essence* of things; it is blind to the *causality* of agents, and to the *substantiality* of objects; and of those numerous *relations* of identity, similarity, unlikeness, dependence, and the rest, which form the universal framework, the rational tissue, of our knowledge, it can give no account. A creature endowed merely with sensibility could never come to know itself as a person, to apprehend itself as an abiding *ego*, and to set itself in contrast and opposition to an objective world. Nor could it come to truly cognize any portion of the external universe, any more than itself as a *being*. Sense, it has been well said, can apprehend the "suchness"—the phenomena qualities—but not the *being*, the "isness" of things. Now in normal perception these sensuous and intellectual elements are closely interwoven, and it may require careful attention and reflexion to separate them; but none the less are they radically different in kind. As, however, the plan of our work requires us to treat of intellectual activity by itself, we will in the present chapter devote ourselves mainly to the exposition of the development of the sentient factor in the process, although, of course, in man's actual experience sense and intellect are not thus isolated.

Before beginning, an example may be useful to show the reader unfamiliar with psychological analysis, that seemingly simple perceptions are really complex. Walking in a field, I become suddenly conscious of a familiar sound, and exclaim, "I hear my big, white dog barking in the road on my right about eighty yards away." But a little reflexion will convince me that the sense of hearing contributes only a small share to such a percipient act. Of the distance, direction, size, and colour of the agent which has caused the noise, my ear of itself can tell me nothing. It merely presents to me an auditory sensation of a particular quality, and of greater or less intensity; the remaining elements of the cognition are reproductions of past experiences. Similarly in other cases, unnoticed inferences, and faint associations furnished by the rest of the senses, attaching to the direct testimony of each particular faculty, simulate after a time the character of immediate revelations of the latter. These indirect or inferential cognitions may be styled the *acquired perceptions* of the sense in question. It is the office of the psychologist to carefully analyze these into their primitive elements, to ascertain what are the ultimate data afforded by each sense, and to trace the chief steps in the process by which the elaborate result is reached.

DEVELOPMENT OF TACTUAL PERCEPTION.—Although in describing the general features of the different senses viewed as mental powers, the order of treatment adopted was unimportant, here in tracing the development of perception it is a matter of great moment to follow as closely as possible the natural order in which *de facto* the several faculties come to offer their contributions.[1] Accordingly we will commence with the *sense of touch*, including under it tactual sensations proper, feelings of pressure, and muscular sensations, whether of resistance or of movement. It seems to us a mistake in this connexion to endeavour to separate the consciousness of pressure from that of mere contact. The isolation is purely ideal. The difference between them is one of degree, and in the actual experience of the child sensations of touch, so far as they are of any psychological significance, involve feelings of pressure. The consciousness of resistance to active effort put forth, indeed, implies a new element, and facilitates the apprehension of something other than self given in the recipient sensation of passive pressure, but even this latter state makes us directly cognizant of extra-mental reality. Starting then with the *sense of touch*, naturally the first question which meets us is: How do we come to know the spatial relations of the several parts of our own person?

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[1] To start with perception by taste, smell, or hearing, or at all events to take any of these as the true type of external perception, is a complete inversion of what is actually given in nature, and may lead into serious philosophical error. These are precisely the faculties by which originally we do *not* obtain any direct perception of matter. They are wanting in the most important feature of that species of cognition which they are supposed to exemplify. They are originally of an almost purely subjective character, and are therefore but little better suited than imagination or memory to illustrate the manner in which we come to know the material universe. *Hearing*, employed not for the illustration of indirect or acquired perceptions, but as a typical representation of the perceptual process in general (Cf Mr. Sully, *Outlines*, pp. 151, 152), misleads the reader into the belief that since by far the greater part of the information yielded by this faculty is of a mediate and inferential character, testifying only to possibilities of other forms of sensation, therefore *all* modes of perception are of a similarly subjective character, and no percipient faculty gives us a direct immediate presentation of extended matter. Hearing and smell exhibit abundantly the force of associated or acquired perceptions, but direct perception they do *not* illustrate.

In mature life we instantaneously localize an impression in the point of the body[2] irritated; and some writers maintain that the affirmation of consciousness is of such a character that this reference of a feeling to the part excited must be a natural endowment possessed from the beginning.

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[2] This seems true in the case of sensations of surface pressure, not so, however, as regards the organic sensations, or those of the other special senses. We project or externalize the cause of the auditory or visual sensation, but unless the impression is markedly painful we do not in mature life advert to the point of the organism affected by the stimuli of these senses. It is in fact the organic or tactual element involved in these sensations which enables us to localize them.

But what precisely is meant by saying, "I feel a pain in my foot"? The statement at once calls up a visual image of the member affected; and it further presents this image at about five feet in a nearly vertical line from my eyes. However, as distance cannot be directly apprehended by the eye, but is known primarily through muscular sensations of movement, and as the visual image of my foot is certainly not given in the painful feeling of pressure, the first consciousness of such a sensation could not have been similar to this. We are not born with an innate idea or representation of our person. Aristotle, long ago, taught that all knowledge starts from experience, and the topography of our own body is no exception to the rule. By observation and experiment, and not through any *a priori* endowment, we have come to learn the shape and appearance of our organism, and to know the definite locality on the visual map to which a particular tactual stimulation is to be referred.[3]

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[3] Dr. Gutberlet, who maintains the doctrine that an original local reference of a very vague character is attached to sensations of contact, summarizes the arguments against the extreme "nativistic" or *a priori* view: (1) We appear to localize impressions in parts of the body demonstrably incapable of sensations, *e.g.*, in our bones, teeth, hair, &c. (2) We also misinterpret the locus of known impressions, assigning them to wrong places, *e.g.*, pressure of the elbow is felt in the fingers, irritation of the brain is referred to the extremities (3) Irritation of the stump of an amputated leg causes us to assign the sensation to the locality originally occupied by the lost limb. (4) We sometimes project sensations outside of the body, *e.g.*, the feeling of pressure to the end of a walking-stick or a pen (5) The definiteness of localization varies considerably in different parts of the body, and decreases in proportion as the part affected is beyond the range of the eye and of the hand, *e.g.*, irritation in the back and within the organism. (*Die Psychologie*, pp 60, 61.)

Tactual Cognition of the Organism.—Although the extreme "nativistic" theory is thus erroneous, exaggerated empiricism rushes into an equally false opinion when it refuses to admit the presence of any element of local reference, or any presentation of extension in our primitive sensations of contact. The true doctrine, as usual, lies between the extreme views. Impressions of extended objects are given from the beginning as extended, and bearing a local reference, but of an extremely vague and indefinite character. From the apprehension of purely unextended sensations the notion of extended matter cannot be formed, and in this respect the cognition of the spatial character of our own body stands in the same situation as the rest of the material world. The extended nature of the organ is given simultaneously with that of the extended surface pressing upon it, but as we have said, this primitive presentation is very ill-defined. Of the shape or quantity of the surface covered our knowledge is at first almost infinitesimal, whilst of the local relations between the point affected and the rest of our person we necessarily as yet know nothing. Nevertheless the character of an impression is largely dependent on its situation; the pressure, for instance, of the same object across the fingers, the palm, the fore-arm, on the head, and on the calf of the leg, possesses in each case a certain distinctive feature. Further, this variation in the aspect of the mental state is in proportion, though not in a constant proportion, to variation in locality. Thus, if the same stimulus be applied to two points on the arm, separated by a short interval, the sensations aroused will contain a certain difference of character, which will increase if the intermediate distance be increased; similarly with impressions on the fingers, though here change in the sensation is more rapid in proportion to variation of locality. Assuming the faculty of apprehending extended impressions over the surface of the body, and this "local colouring,"[4] which marks the sensibility of the different parts affected, if an object is moved along the skin from one locality to another, the capacity of the intermediate region for tactual sensations is discovered.

It is probably, however, the experience of *double contact*, which contributes most to the definition of the relative situation of the several parts of the organism. If a child lays his right hand upon his left there is awakened a double tactual feeling of extension. If he then moves the right palm along the left arm up to the elbow or shoulder he becomes conscious of a series of *muscular sensations* in the right arm, and also of a series of extended *tactual impressions* both in the right hand and along the left arm, which vary in character as they depart farther from the original sensation in the left hand. This movement may be then reversed and the tactual sensations gone through in the opposite direction; and finally by laying the left arm along a flat surface, or *vice versa*, the series of tactual impressions, formerly given in succession, will now be presented as co-existing outside of each other in space. When these or kindred experiments have been executed a few times, the difference in character of the tactual impressions on two points of the arm awaken by association a representation of the number of tactual sensations and of the duration of the series of muscular sensations required to span the interval, and their relative situations are so far defined.

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[4] The terms, *local sign*, and *local colour*, have been used by Lotze to designate a purely subjective quality varying with the part of the organism affected, and attached to the purely subjective non-spatial presentations of sense. These *local signs* become symbols of the muscular sensations of movement required to pass from one sensitive point to another, and by their means out of mental states, individually revealing no element of extension, the notion of space is alleged to be built up. Lotze thus advanced beyond the empiricism advocated by Dr Bain, Mill, and other English sensationalists, in admitting the necessity of more than mere tactual and muscular sensations. But the *local signs* cannot *generate*, though they may be of great value in *defining* our notion of space. A direct presentation of extension must be somehow afforded as material to work upon.

In this way a blind child would rapidly gather by experience a tolerably accurate knowledge of the configuration of its body, and of the relative positions of its varying forms of tactual sensibility. The localization of impressions would become more definite in the parts capable of being easily explored by means of sensations of double contact, while the outlying districts would be known in a less perfect way. Still, it is sight which, normally speaking, presents to us the rich realities of space. Apprehending in a simultaneous act a large space of the surface of the body, the eye far surpasses in efficiency the consciousness of double contact, while it supplements the latter experience as a third witness in a multitude of observations. As our education advances the visual image of the point of the organism stimulated becomes more intimately associated with the local colouring of the tactual sensibility of that point, and the map of the sense of touch is translated into that of sight.

Tactual Cognition of External Objects.—Together with progress in our knowledge of our own body proceeds our education as regards the material world outside; every increment of information in the one department is a corresponding gain in the other. Abstracting again from vision, when the child lays his hand flat on some object before him, suppose a book, he becomes conscious of an extended impression. By moving his hand he experiences two concomitant series of *tactual* and *motor* sensations. When he reaches the edge of the surface the tactual sensations cease, and then reversing the operation he may reproduce them in the opposite order. After a few such experiments, he would come to know in a rough way the number of units of tactual or motor sensations necessary to pass from the first to the last impression of contact, and he would thus have a measure of the *length* or *breadth* of the book. Suppose he then takes the volume between his two hands or fingers, he will discover that it presents several resisting surfaces, and some further experiments in the way of tactual and muscular feelings define his knowledge of its *solidity* and *weight*.

Here, again, as before, to the normally endowed being, the visual images presented by sight of the objects touched and handled enormously facilitate progress, and gradually enable him to infer the temperature, magnitude, solidity, and weight of things at a distance. This mode of education is going on in one shape or another every moment of his waking existence, and consequently his perception of the objects in his immediate vicinity very soon becomes tolerably accurate. The several members and parts of his own body permanently present as the centre of his pleasures and pains, and the subject of his sensations of double contact, are known to be very different from all other objects. These latter by their repeated recurrence to his notice in like circumstances, by the frequently confirmed experience that he can renew his acquaintance with them at will, and by their regularity in producing their effects, whether observed or unobserved, first evoke a dim belief, and then a rational conviction as to their abiding existence when beyond his view. Consequently, at a very early stage in his existence he becomes alive to the fact that his nurse, his bed, his food, and other objects of interest are not annihilated every time he closes his eyes.

We have spoken so far of the essential capabilities of touch: a word may be of interest now on the special or accidental acquirements of this percipient faculty. The degree to which the sense of touch can be cultivated, and the fineness of the capacity of both muscular and tactual sensations for being discriminated appear truly amazing when thoughtfully considered. The miller can by the sense of feeling distinguish variations in the quality of flour utterly invisible to the eye. The clothier can recognize subtile differences in the texture of silk, linen, or velvet, of an equally minute character. In such universal attainments as those of speaking, reading, writing, playing the piano, shaving, and indeed in all mechanical arts, the most delicate sensibility is exhibited. These actions involve a complicated series of movements under the guidance of muscular and tactual sensations which are distinguishable by differences so faint that we are fairly lost in astonishment at the infinitesimal forces governing thus infallibly the seemingly easy process.

It is in the blind, however, that this sense reaches its proper perfection. By them space is known and remembered solely in terms of tactual and motor experience. Their attention is concentrated on this field of cognition, and their powers of memory devoted to its service. The increased exercise and cultivation of the remaining senses when sight is in abeyance, has the effect of developing these faculties in an extraordinary manner, and none of them more so than that of touch. The blind, for instance, who have been taught to read, can decipher the contents by passing their fingers rapidly over type not much larger than the print of the present work, with a facility that seems incredible to their more fortunate brethren who make the attempt. Dr. Carpenter relates of Laura Bridgman, the well-known deaf and dumb mute, that she unhesitatingly recognized his brother "after the lapse of a year from his previous interview by the 'feel' of his hand."[6] She estimates the age and imagination assumes the part played in waking life by the external senses. During sleep the activity of these latter falls into abeyance; volitional control over the course of thought ceases; the power of reflexion and comparison is suspended; and the fancy of the dreamer moves along automatically under the guidance of association. Consideration of these circumstances will help us to partially account for the peculiar features of the dream. Its chief characteristics are, (*a*) its seeming reality, (*b*) its incoherence and extravagance, (*c*) its possession of a certain coherence amid this inconsistency, and (*d*) the exaggeration of actual impressions.

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[6] *Mental Physiology*, § 127

(*a*) The apparent reality of the dream is, in great part, a consequence of the cessation of the action of the external senses. In sleep the images of the fancy which may arise within us are not subject to the correction which the presentations of the senses are ever furnishing during waking life. Even in the most profound reverie, when our thoughts move along at random, there is always, so long as we are awake, a plentiful stream of sensation flowing in upon the mind through the several faculties; and although we scarcely advert to them, these sensations exert a steady counteracting influence on the flights of fancy. The objects which we dimly see around us, the tactual and auditory impressions of which we are vaguely conscious, all conspire to keep us in constant collision with reality; and when we imagine ourselves at the head of an army, or in the jaws of a tiger, the obscurely apprehended table and chairs of our room exert a silent check upon the credence we are inclined to give to all vivid ideas. In sleep it is otherwise; the corrective action of the external senses being cut off, we are completely at the mercy of the phantasy, and place implicit confidence in each new illusory cognition.[7]

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[7] Lewes, following Hartley, explains the apparent reality of the phantasms of the dream, mainly by the suspension of the corrective action of the external senses Cf. *Physiology of Common Life*, pp. 367—370. Carpenter, *Mental Physiology*, § 482, in accordance with the important part he assigns to Will in mental life, like

(*b*) The inconsistency of the dream seems to be due to its course being left entirely to the guidance of fortuitous associations modified by the interference of accidental sensations at the moment. The absence of control over our thoughts disables us from reflecting upon the ideas which arise spontaneously, and prevents us from comparing them with past experience, or with each other In reverie, on the contrary, voluntary power rarely sinks into complete abeyance, and on the suggestion of some flagrant absurdity, the mind tends to exert itself against the illogical train of images, and even if it permits the incongruous series to take their course at least reserves its assent. The casual entrance of the few external impressions which penetrate to the mind during sleep, and the action of the systemic sensations are probably fertile sources of new lines of thought. But since self-command no longer exists, although we may feel a vague surprise at the chaotic groupings of ideas thus effected, we are yet unable to elicit the reflective act by which the inconsistency may be brought home to us, and accordingly thought follows thought in an arbitrary manner.

(*c*) The coherence of the dream, in so far as it occasionally exists, probably results in part from an orderly succession of previously associated ideas, in part from a faint power of selection exerted by a dominant tone of consciousness at the time, which may be able to reject striking eccentricities.

(*d*) The exaggeration of occasional real impressions is accounted for by the fact that while the great majority of external sensations are excluded, those which do find entrance are thereby in a peculiarly favourable position. They are in novel isolation from their surroundings; their nature is vaguely apprehended;[8]

Stewart, lays chief stress on "the entire suspension of volitional control over the current of thought" during sleep. To us it seems that both factors co-operate in the general effect of the dream, though probably its vividness is chiefly due to the former, its varying and inconsistent character to the latter.

[8] Mr. Sully (*Illusions*, pp. 147—149) ascribes the magnifying agency of the dream chiefly to the obscure manner in which the

and they cannot be confronted with other experiences. Accordingly they usurp the whole available resources of consciousness, and so assume an utterly inordinate importance. A slight sensation of cold or pressure, if it accidentally fits in with the current of our dream, may thus give rise to the illusion that we are lost in a snow-storm, or crushed and smothered under a falling house.

Another striking feature of dreams is the extraordinary rapidity with which trains of thought sometimes pass through the mind. Dreams involving long and complicated series of events, coloured with joy and sorrow, have frequently occurred within the space of a few seconds—from the first sound of the hour or of the caller until the final note by which the sleeper is awakened to real life.[9]

Somnambulism seems to be merely a more vivid form of the dream. The chief difference seems to lie in the circumstance that the somnambulist, or rather his thoughts are capable of eliciting movements. Some of the channels of sensation, moreover, ordinarily remain

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nature of the stimulus is apprehended—*ignotum pro magnifico*. The force of a novel impression even in waking life is usually overestimated. In sleep the general lethargy of the higher centres engaged in cognition prevents proper recognition of even familiar stimuli, and so converts them into strange or formidable phenomena. Aristotle and St. Thomas, who also noticed this property of exaggeration, considered it to be due to the suspension of the external faculties and the concentration of sentient energy in the interior. Cf St. Thomas, *Comment in Arist.*, *De Somniis*, Lect. iv.

[9] "The only phase of the waking state in which any such intensely rapid succession of thoughts presents itself, is that which is now well attested as a frequent occurrence, under circumstances in which there is imminent danger of death, especially by drowning, the whole previous life of the individual seeming to be presented instantaneously to his view, with its every important incident vividly impressed on his consciousness, just as if all were combined in a picture, the whole of which could be taken in at a glance." (Carpenter, op. cit. § 484, note.) The teleological significance of this fact is obvious It is, moreover, not easy to see how such rapidity of thought is to be reconciled with those materialistic conceptions of the mind which look on all mental states as determinate "aspects" or "functions" of definite neural changes.

open, and the agent is generally unable afterwards to recall his somnambulistic experiences.

Readings.—On the Imagination, cf. St. Thomas, *Comm. De Anima*, Lib. III. Lect. 4—6; Carpenter, *Mental Physiology*, c. xii.; Hamilton, *Metaph.* Lect xxxiii.; Porter, op. cit. Part. II. cc. v. vi.; Gutberlet, *Die Psychologie*, pp 83, seq. The subject of Dreams is treated by Aristotle in a special tract, cf. St. Thomas, *Comm. De Somniis.* The rude notions on physiology prevalent among the ancients told very seriously on the value of this work, but nevertheless it contains many strikingly acute observations. Carpenter, op. cit. c. xv. is good on the same subject.

CHAPTER X.

MEMORY. MENTAL ASSOCIATION.

THE term *Memory*, in ordinary language, designates the faculty of retaining, reproducing, and recognizing representations of past experiences. These several features of memory vary in degree of perfection in the same, and in different individuals. Viewed as the capacity for preserving our mental acquisitions this power has been called the *Conservative Faculty.* It is an essential condition of all knowledge. The simplest act of judgment, as well as the longest chain of reasoning, necessarily implies *retention.* But acquisition plus conservation is not enough. During the whole of our life the greater portion of our mental possessions lie below the surface of consciousness, and exist only in a condition of potential resuscitation. It is the power of *recalling* and *recognizing* these dormant cognitions which completes and perfects this instrument of knowledge. The act of recognition is radically distinct from the mere reapparition of an old mental state; but both have been sometimes comprehended under the *Reproductive Faculty.*[1] We will devote some con-

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[1] Aristotle (*De Memoria et Reminiscentia*) distinguishes between *memory* (μνήμη), the passive faculty of retention, and *reminiscence*

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sideration to each of the three elements involved, beginning with that of reproduction.

Reproduction.—A little observation of our minds reveals the fact that thoughts and recollections of past events do not occur completely at random. Our fancy can, it is true, move in a very rapid and seemingly arbitrary manner, whilst widely remote actions and episodes often reappear in imagination in an unexpected and disconnected way. Still, closer attention to the reproduced states will usually disclose faint and unobtrusive connexions binding together the links of what at first looked like a haphazard series of thoughts.

But it is in the act of *reminiscence*, in the sustained effort to recall some past experience, we perceive most clearly that the current of representations which pass before our consciousness do not proceed in an entirely casual and lawless manner. Starting from a vague notion of the event which we wish to remember, we try to go back to it by something connected with it in time, in place, or by any other

(*ἀνάμνησις*), the power of active search or recall. The division is analogous to that of modern writers into *spontaneous or automatic* memory, and *voluntary* memory, or the power of *recollection*. The operation of reminiscence is compared by St. Thomas to that of syllogising, a progress from the known to the unknown, from the remembered to the forgotten. As it involves volitional and rational activity it is restricted to man, whilst memory is common to the brutes. Hamilton confines the name memory to the *retentive* or *conservative* capacity of the mind, whilst under the *reproductive* faculty he includes both reproduction and recognition. The imagination proper, he describes as the representative faculty. Mr. Sully classifies all forms of activity which pertain to our power of remembering as elements of the *Reproductive Imagination*. This he contrasts with the *Productive Imagination*, or Imagination proper.

kind of affinity. We notice in the operation that by fixing our attention on any particular occurrence we bring it into greater vividness, and numerous attendant circumstances are gradually recalled. Our ordinary procedure is to seize upon, and intensify [by attention] the force of that one of the newly-awakened recollections which we judge most likely to lead to the desired end. When our gaze is focussed on this fresh centre a new system of related objects begins to emerge from obscurity, and here we repeat our process of choice, picking out again the most promising train. By reiterated selections and rejections of this kind we get gradually closer and closer to the object of pursuit, until it finally flashes upon us with a more or less lively feeling of satisfaction. Throughout our investigation we must have had some vague idea, some general outline of the experience of which we are in search, in order to direct us along the most likely paths. That we necessarily have some dim notion of the forgotten occurrence is made evident in the final act of recognition, for in this stage we become conscious that the rediscovered fact fits precisely into the vague outline still retained. The accompanying pleasure is due to the perception of agreement between the new and the old, together with the feeling of relief occasioned by having the undefined want satisfied.

The study of such an operation as that just described convinces us that our recollections succeed each other not arbitrarily, but according to certain laws. Careful observation of our mental processes have enabled psychologists to reduce such laws to a few very general principles. These principles which condition the reproduction of phenomena of the mind have been called the *Laws of Mental Suggestion* or the *Laws of the Association of Ideas.* The chief of these are: (1) the *law of similarity* or *affinity in character;* (2) the *law of contrast* or *opposition in character;* and (3) the *law of contiguity,* comprising association (*a*) in *space,* and (*b*) in *time.*

The *Law of Association by Similarity* expresses the general condition that *the mind in the presence of any mental state tends to reproduce the like of that state in past experience,* or as it is sometimes enunciated, *mental states suggest* or *recall their like in past experience.* The previous form of expression, however, possesses the advantage of calling attention to a point frequently overlooked by English psychologists, namely, that it is in the mind, and not in the transient phenomena, the binding or associating force dwells. An impression or idea, viewed merely as an individual phenomenon, contains no reason in itself why another mental event like or unlike it should be its successor. It is only the permanence of the subject which renders association of the states possible. The mind, retaining as habits or faint modifications former experiences, resuscitates on the occurrence of similar or contrasted events the latent state, and recognizes the likeness which subsists between the new and the old. The vicious reasoning of sensationalist writers who explain both the mind and the material world, including the human organism, as a product of the association of ideas is thus obvious.

Examples of association by similarity are innumerable. A photograph recalls the original, a face that we see, a story that we read, a piece of music or a song that we hear, all remind us of similar experiences in the past. Even the less refined sensations of touch, taste, and smell, cause us to recollect like impressions in our previous life. Painting, sculpture, the drama, and the rest of the fine arts, seek to please by their success in imitation. The pleasures of wit and humour, the charm of happy figurative language in poetry or prose, and the admiration won by great strokes of scientific genius, are in the same way largely based on the satisfaction of the tendency by which the mind is impelled to pass from a thought to its like.

The *Law of Contrast* enunciates the general fact that *the mind in the presence of any mental state tends to reproduce contrasted states previously experienced.* Or it may be formulated in the proposition that *mental states suggest contrasted states of past experience.* The idea of prodigal wealth recalls that of needy poverty, cold suggests heat, black white, virtue vice, and so on. From the beginning, however, this law has been felt to be reducible to more ultimate principles. In fact, to declare broadly that mental states are inclined to revive former perceptions both like and unlike them would approach paradox, if not actual contradiction. The truth is, this law in so far as it is mental and not an effect of organic reaction is a result of the combined forces, similarity and contiguity. This will be made evident presently.

The *Law of Contiguity* formulates the truth that *the mind in the presence of an object or event, whether actual or ideal, tends to recall other objects and events formerly closely connected in space or time with that now present.* It is often impossible to draw a rigid line between associations due to close connexion in time and those founded on contiguity in space. When looked at from the mental side, we say the subjective impressions occurred simultaneously, or in close succession; viewed from the opposite standpoint, we say the perceived objects were locally contiguous. Suggestion by contiguity whether in space or time is the most important and far reaching form of association. It is not confined to cognitive acts, but includes emotions, volitions, and external movements as well. It is the principle upon which every system of education both mental and physical is based; and by the sensationalist school in this country it has been erected into an omnipotent agency through which all knowledge and belief regarding space and time, mind and matter, have been created. We have pointed out in treating of sense-perception how the taste, smell, touch, and sight of objects mutually suggest one another. Contiguous association is also a leading source of our pleasures and pains. The process of learning to walk, to speak, and to write, and the acquisition of the various manual arts, rest upon the tendency of acts which are repeated in succession to become so united that each impels to the reproduction of the next. Language is possible because auditory sounds grow to be associated on the one side with the visual image of the object, and on the other with the complex cluster of motor or muscular impulses involved in the utterance of the name; and literature is intelligible only through the marvellous command which repeated associations have given us over the innumerable combinations of individual letters which cover the page of a book.

Although, as we have said, associations in space are often intimately related to connexions in time, there is one important feature in which these latter differ from the former. Owing to the permanent coexistence of the separate parts of an extended object, and to our visual power of simultaneously apprehending these parts, no particular point becomes endowed with any special priority; consequently we can in imagination, as in the previous reality, pass in any order from each point to every other. But in serial states, where each separate impression has dropped out of consciousness before the appearance of the next, the whole force of the association is to reproduce the mental states in their original order of occurrence.

Contiguous suggestion is an agency of such extensive range in mental phenomena that some psychologists hold similarity, contrast, and all other forms of association, to be merely special applications of this ultimate principle. Others, on the contrary, consider contiguity to be a particular case of similarity—likeness in space or time. That the law of contrast is resolvable we have before stated. *Contraria sunt ejusdem generis.* Contrast presupposes similarity in genus. There is no disposition in the mind to pass from the idea of civilization to that of liquid or of black, because there is no relation of similarity between them. But there is an easy transition in thought from civilization to barbarism, from solid to liquid, and from black to white, because each pair of terms refer to a common class. Still this does not quite complete the explanation, as there may be many species in the class, and there is no special inclination felt to pass to intermediate objects, such as from white to green or red. It is here the principle of contiguous suggestion supplements that of similarity. We are accustomed to meet in literature, in language, and in daily experience, contrasted terms and objects bound together in pairs; and in fact the entire judicial function of the intellect consists in the discrimination of unlike things, and assimilation of those which are like, so that we naturally acquire a facility for passing from a notion to its opposite.

The attempt to reduce similarity and contiguity to a single principle is not quite so satisfactory, though they are evidently connected. Psychologists who maintain that contiguity is the most general principle, explain suggestion by apparent resemblance as really due to the fact that those features in the present object which also existed in the former object arouse by contiguity the parts which were adjacent to them on that occasion. Thus, when the face of a stranger reminds me by similarity of an old friend, it is held that the process consists of a deeper impression of the common features, which results from the fact of these features having been previously perceived, and then a consequent reinstatement of the lineaments, formerly contiguous,.whilst our interest and attention is withdrawn from those adjacent in the present experience.[2]

Writers who look upon similarity as the ultimate law, describe contiguity as merely a particular case of resemblance. No part of the present representation, it is urged, can be "common" to the previous mental state in the strict sense of being numerically one and identical on the two occasions. Even the mental states aroused by the contemplation of the *same* object now and five seconds ago are two really different conscious acts. But it cannot be denied that an experience—a sensation, an intellectual cognition, or an emotion—often recalls a similar state that occurred amid completely different surroundings at a very distant period. There is, for instance, no connexion of *contiguity* between the present perception of a photograph seen for the first time and a friend's face whom I have not met for twenty years. We must therefore, it is argued, admit as an ultimate fact this tendency of the mind to reproduce past experiences connected with the present by likeness alone. Moreover, cases described as contiguous associations are merely particular forms of similarity—likeness in space or time. When, for example, a bridge recalls the image of a house that used to stand hard by, the association is said to be one of a partial resemblance between the present and past mental states. The mind is at present in a state *like* that in which it was before.[3]

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[2] The following analysis of Similarity is given by the German psychologists Maas and Biunde: Let the face now seen for the first time be called B. Let the former face recalled through the resemblance of B be styled A. Let the points common to both be called *m*. Let the unlike features peculiar to B be named *b*, and let those peculiar to A be named *a*. Now, when B is observed, the familiar but unexpected feature *m* attracts notice, while the less interesting *b* is ignored. But *m* has been formerly frequently joined with *a* constituting the total representation A, and accordingly bringing back its old associate it reinstates A. "When, for example, I look at the portrait of Sir Philip Sidney, I am reminded of its likeness to the portrait of Queen Elizabeth, because of the ruff which is about the neck of each, which in this case is *the only common* feature, and attracts at once the attention. The ruff brings back everything besides in Her Majesty's portrait—the head-dress, the features, the sceptre, the robes, &c, till the whole is restored." (Porter, op. cit. § 247.) Mr. J Ward on similar lines contends that it is in previous *contiguity* alone the associative or suggestive force lies, and that *similarity* is only an incidental relation recognized *after* the reproduction is accomplished. ("Psychology," *Encycl. Brit.*)

It seems to us that each of these principles (though they are usually allied in their operation) contains a separate element of its own. On the one hand, it is a fundamental irreducible law that present mental states tend to awaken representations of their *like* in past life. On the other, these reproduced representations usually call up *unlike* adjacent elements, which formerly co-existed along with them. The second fact cannot be really resolved into the first, nor the first into the second. We may of course manage to include both forms of suggestion in one verbal statement, but their radical difference will still remain. Though the adjectives "similar" or "same" may be used to mark agreement of date as well as likeness of quality, we must not forget that *coincidence in time* is something essentially different from *affinity in nature.*[4]

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[3] Herbert Spencer makes similarity the sole ultimate principle: "The fundamental law of association is that each (mental state), at the moment of presentation, aggregates with its *like* in past experience. . . . Besides this there is no other; but all further phenomena of association are incidental." (Collins' *Epitome*, p. 213.)

The terms *Compound,* or *Complex* associations, are used to designate those forms of suggestion where two or more distinct lines of connexion co-operate in the reproduction of a mental state, or series of mental states. The word *co-operative* appears to us to describe more accurately the nature of this process in which several separate strands join together to intensify the force of association. The phrase, *conflicting associations,* will then designate with precision those contrasted phenomena in which the lines of suggestive force are divergent. Instances of co-operative association are abundant; in fact, we rarely find suggestion acting along a solitary isolated path. The recollection of a poem may be effected partly by auditory associations of rhyme and metre, partly by the succession of connected thoughts, and partly by the visual picture of the page on which the verses were printed. Most familiar acquisitions such as walking, speaking, writing, brushing our hair, playing the piano, are the result of the co-operation of parallel series of tactual, motor, and visual or auditory series of associated sensations; and the great assistance which local associations afford in resuscitating forgotten events where the other links have become attenuated is well known.

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[4] Hamilton originally accepted the analysis of Maas, and enounced as the one comprehensive principle of Association the Law of Redintegration or Totality: *Thoughts suggest each other which have previously constituted parts of the same entire or total act of cognition* (*Metaph.* Vol. II. p. 238.) Moreover he traced the recognition of this principle back to St. Augustine (*Confessions,* x. c. 19), and even to Aristotle. Subsequently, however, in his work *On Reid,* Note D***, Hamilton abandoned this view, and acknowledged both *Similarity* and *Contiguity* as irreducible. He thus formulates the two principles: (1) The Law of Repetition, or of Direct Remembrance:—*Thoughts co-identical in modification (i.e. similar as acts of the mind) but differing in time, tend to suggest each other.* (2) The Law of Redintegration, of Indirect Remembrance, or of Reminiscence:—*Thoughts once co-identical in time, are however different as mental modes, again suggestive of each other, and that in the mutual order which they originally held.* The terms *Direct* and *Indirect* mark the fact that a mental state immediately or directly recalls its *like* in the past, and mediately the unlike states formerly *contiguous* to this restored element. This latest position of Hamilton is the true one, and is precisely that of St. Thomas. The *physiological* counterpart of the law of *similarity* probably lies in the increased facility of the *same* nerve-centres to act a second time, that of *contiguity* in the tendency of *groups* which have acted *together* to do so again.

Conflicting or *obstructive* associations illustrate the incidental disadvantages which we so frequently find attached to the working of a generally useful law. Just as a desired recollection may be facilitated by several convergent associations of similarity or contiguity, so may it be impeded by their divergence. A verse, or a word, which is connected in a poem or speech with more than one context, frequently tends to shunt us off the right track. The aim of the riddle or conundrum is this very result. The recollection of a name of which we possess the first letter may be similarly obstructed; and the accidental presence of any strong counter-association connected with a present idea, may temporarily interfere with our power of reminiscence. The best method of procedure in such cases, experience teaches us, is to secure a new unprejudiced start by turning away from the subject altogether for awhile, until the vivacity of the connexion between the obstructive word or idea and the divergent series has diminished, or until we can hit upon some independent line of suggestion when the pursuit may be resumed with better prospects of success. The sudden revivals of lost ideas, whilst we are immersed in a new occupation, after a vainly protracted search are in this way explained. Psychologically misleading associations were in the ascendant during our futile struggles, and physiologically the perturbed state of the brain rendered the reproduction of the neural correlate of the desiderated representation impossible. But the subsequent readjustment gave rise to the particular set of conditions psychical and physical which made resuscitation feasible, and which, either automatically or influenced by a lingering semi-conscious volition, disinterred the lost thought.

In addition to these primary laws of association or suggestion, there are certain other general conditions determining the efficiency of memory and recollection. Some, or all of these, have been variously expressed under such titles as, the *law of preference*, the *secondary laws of suggestion*, and *general conditions of acquisition and reproduction*.[5] However they be described, they serve to explain the varying force of associations not accounted for by the other group. The leading principles in this secondary class are: (1) *Vivacity of impression;* (2) *Frequency of repetition;* and (3) *Recentness.*

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[5] Hamilton, by the *Law of Preference*, expresses the greater suggestibility of certain thoughts due to their superior interest, or to the order previously followed by attention. (*Notes and Dissertations*, pp. 913, 916.) Mr. Murray uses the second, and Dr. Bain and Mr. Sully the third term, to indicate the laws here described.

(1) Assuming the action of the other laws to remain constant, the deeper, the more intense, or the more vigorous the original impression, the more permanent is its retention, and the easier its reproduction. The vividness of an impression is itself dependent *objectively* on the inherent attractiveness or force of the stimuli, and *subjectively* upon the energy of our voluntary attention. The novelty, beauty, or overwhelming power of a single experience may give it life-long permanence; and deep interest or intense application of attention may largely compensate for the absence of the other conditions of reproduction. (2) The influence of repetition need not be dwelt on. By reiteration, especially at short intervals, the feeble association created by the first contiguous occurrence of two events becomes gradually converted into an almost irresistible suggestive force, and a frail link of similarity is changed into an iron bond. (3) The third law is also familiar. The shorter the time that has elapsed and the fewer the intervening impressions, the more easily a past thought or series of thoughts is recollected. The co-operation of one or more of these laws with one or more of the others will account for variations in the suggestiveness or suggestibility of particular mental states. Of two associated terms, such as a name and its object, a sign and the thing signified,

a means and its end, one may have far more power of recalling the other than *vice versa*. This may be due either to the customary movement of our attention in a regular order, as in the case of repeating the alphabet, or to the direction whither our interest naturally tends, as where symbols or means point to the ultimate object. It may also be due to the circumstance that one of the terms has been met with more frequently, or more recently than the other, or to the fact that it is connected with a larger number of co-operative threads of association now present.

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RETENTION.—The problem of the *conservation* of experiences has been as keenly discussed as that of reproduction. That cognitions do *de facto* persist, whilst not realized in consciousness, is indeed only a hypothesis, but yet one which is irresistibly forced upon us. We have continuous evidence that we can recall familiar past events, and we are consequently convinced that they have dwelt within us during the interval. The theory offered by Aristotle and the schoolmen on this subject was summed up in the phrase which describes the memory as *thesaurus specierum*. By *species*, as we have already stated, the scholastic philosophers understood modifications which reflect in a psychical manner external objects, and which have been excited in the soul by the action of these objects. These *species* or cognitional acts were classed as sensuous or intellectual according as they pertained to intellect or sense, and the mediæval psychologists taught that when experiences have disappeared from consciousness the soul is endowed with the capacity of retaining these modifications as faint dispositions or habits.—But the retention is not solely mental; the organism co-operates. The soul is not a detached spirit, but an informing principle dependent on the body which it animates. Consequently the latter co-operates in conservation and reproduction, just as in the original perception. The physical impression, like the mental act, must persist in a habitual manner ready to be recalled into activity on an appropriate occasion.[6]

Modern writers who have departed from this view have commonly erred by accounting for memory as a property of the soul alone or of the body alone. Sir William Hamilton looks on all physiological hypotheses on the subject as unphilosophical, and as affording no insight into the nature of memory, and he asserts that "all of them are too contemptible even for serious criticism."[7] This remark is perfectly just if the physical theory *by itself* be advanced as an adequate explanation of memory, that is, apart from any retention by the permanent mind; but that there is a subsidiary concomitant process of organic conservation, on which the mind is at least partially dependent, is rendered probable by a multitude of facts. (1) In youth, while the organism is most plastic, we are capable of acquiring easily the most enduring habits and recollections. (2) The faculty becomes impaired in later life as the organism grows less pliable. (3) Injuries of the brain, fevers, and cerebral diseases, frequently act in a striking manner on memory whilst the other cognitional faculties remain unaffected. Determinate periods of life, special kinds of experience, classes of words, particular languages, certain parts of speech, and even individual letters, have been suddenly erased by physical derangements of the cerebrum.[8] (4) Moreover, these losses have often been suddenly restored on the recurrence of abnormal cerebral conditions. (5) Finally, in ordinary experience health, vigour, and freshness of the brain are found to be most important conditions of the acquisition of knowledge.

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[6] Cf. St. Augustine (*Epist.* ix. ad Neb. n. 3). "Itaque, ea quæ ut ita dicam, vestigia sui motus animus figit *in corpore*, possunt et manere, et quemdam quasi habitum facere, quæ latenter, cum agitata fuerint, et contractata secundum agitantis et contractantis voluntatem ingerunt nobis cogitationes, et somnia." Also St. Thomas: "Dicit (Aristoteles) manifestum esse quod oportet intelligere aliquam talem passionem a sensu esse factam in anima et *in organo corporis* animati, cujus quidem animæ memoriam dicimus esse quemdam quasi habitum, quæ quidem passio est quasi quædam pictura. . . . Dicit autem in anima et *in parte corporis;* quia cum hujusmodi passio pertineat ad partem sensitivam quæ est actus organici corporis, hujusmodi passio non pertinet ad solam animam sed ad conjunctum." (*Comm De Memoria et Reminiscentia*, i. l. 3.)

[7] *Metaphysics*, Vol. II. p. 211.

Hamilton's own theory is that of many German spiritualist philosophers. He explains memory, in accordance with the doctrine of latent or unconscious mental modifications, as a result of the self-energy of the mind. Cognitions are not passive impressions, but spontaneous activities of the soul, exerted on the occasion of external stimuli. As modes of a subject one and indivisible they cannot be destroyed—a part of the *ego* must be detached or annihilated if a cognition once existent be again extinguished. The real problem with Hamilton, then, is not that of remembrance, but of obliviscence; and this he explains as due to the gradual enfeeblement and obscuration of former states owing to the rise of successive activities into the limited sphere of consciousness. This delitescence or subsidence of the old energies is continuous, but they are never completely obliterated.

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[8] For copious evidence in favour of such cerebral registering of experiences, cf Carpenter, *Mental Physiology*, §§ 340—360.

Regarding this doctrine we have room here only to point out the erroneous idea involved in conceiving a past act of perception as persisting in a merely lowered degree of activity. In such a view consciousness would be but an accident and not an essential constituent of cognition. This error is traceable to the literal interpretation of metaphorical language regarding the *surface* of consciousness. A cognition cannot whilst retaining its reality as a cognition, sink into unconsciousness, just as a balloon or a diving-bell descends into denser or more profound strata. Its *esse* is *percipi;* and passing out of consciousness is cessation of existence, not mere diminution of intensity. Consequently, the true conception of retention is the old one, *per modum habitus.* An act of knowledge when it has passed out of thought is no longer an activity or energy; as an act it has perished, but during its existence it wrought an effect in the soul in the shape of a habit or disposition, which on the recurrence of suitable conditions is capable of giving rise to a representation of the former state.

Far more seriously erroneous, however, is the theory which, exaggerating the capacity of the organic factor, would explain memory in purely materialistic fashion. Dr. Bain, Mr. Spencer, Dr. Maudsley, and M. Ribot, are well-known representatives of this view. Memory is in this hypothesis, "*per se* a biological fact—by accident a psychological fact."[9] To each cognitive act, sensuous or intellectual, there corresponds a definite disturbance of some group of nerve-fibres and nerve-cells in the brain. Such a cluster of neural elements vibrating or acting together in any way retain a tendency to act in a similar way again. Lines of least resistance are formed, and every repetition of a conscious act with its regrouping of the appropriate collection of cells gives greater stability to the cerebral registration. These organic modifications are, however, according to the more recent exponents, to be viewed, not so much in the light of mechanical impressions stamped upon the substance of the brain, as "dynamical sympathies" or alliances, created between separate centres of activity by means of which simultaneous re-excitations of the original groupings may be secured. The revival of the old neural tremor affords then, it is supposed, an abundantly sufficient explanation of the phenomenon of recollection. "Memory is, in fact, the conscious phase of this physiological disposition, when it becomes active or discharges its functions on the recurrence of the particular mental experience."[10]

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[9] Ribot, *Diseases of the Memory*, p. 10.

RECOGNITION.—The weak point of this theory is that it simply ignores the essence of the problem—the *act of recognition.* Apart from the insuperable difficulty due to the physiological law of metabolism—the fact of perpetual change going on in the material substance of the body—which remains untouched, this hypothesis fails to distinguish between the *reproduction* of states like former ones and the *identification* of this similarity. The problem to be solved is how some striking experience, such as the sight of Cologne Cathedral, the death of my father, a friend's house on fire, the first pony I rode, can be so retained during a period of fifty years that, when an old man, I feel absolute certainty of the perfect agreement in many details between the representation of the event now in my mind and the original perception. The circumstance that the passage of a neural tremor through a system of nerve-fibres may leave there an increased facility for a similar perturbation in the future, in no way indicates how this second excitation or its accompanying mental state is to *recognize* itself *as a representation* of the first. To account for the facts there is required a permanent principle distinct from the changing organism, capable of retaining the old states in some form or other, and also in virtue of its own abiding identity, capable of *recognizing* the resuscitated image as a representation of the former cognition. Given such a principle, the persistence of physiological "traces" or "vestiges" may facilitate its powers of reproduction, and may serve to account for differences in individual endowments; but without such an abiding mind the plastic properties of the nerve are useless to explain the ~~fact.~~ Phenomena etc.

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[10] Dr. Maudsley, *The Physiology of the Mind,* p. 513. Accordingly, consistently enough elsewhere to the question, What is the mind, the "thinking substance?" he replies: "The physiologist answers that it is the brain, not any supposititious metaphysical entity of the existence of which he has no evidence whatever, and of the need of which as a hypothesis he is not conscious." (p. 126.) This unequivocal *ex cathedra* utterance suggests to the inquiring mind two queries: Who is *the* physiologist? and, What is the *brain?* The response to the first we presume to be, "*I, Dr. Maudsley.*" At all events, it is pretty certain that very many eminent physiological authorities would not subscribe to this faith. In reply to the second question, we have the answer deduced inexorably from Dr. Maudsley's own view of the nature of knowledge by Hume, Mill, Mr. Bain, and other sensationalists. The material world, including presumably the human brain, which *the* physiologist reverentially esteems such a substantial reality, does not rank even as a dubious "supposititious metaphysical entity." It is nothing more than a cluster of ideas or sensations, a mere series of transitory mental states. Query number three then emerges: Of what are these ideas the states?

Besides recognition, however, the special form of active or voluntary memory termed recollection or *reminiscence* refutes the materialistic hypothesis. In this operation the mind controls and directs the course of its ideas. The process involves reflexion, comparison, and active intellectual cognizance of relations, whilst the free acceptance or rejection of selected lines of thought constitutes its most essential feature. Now, at the very most, the purely physical theory might account for the awakening of representations of former experiences by the accidental action of some external stimulus which sets the group of nerves engaged vibrating in the old way. But if there be no such external stimulus how is the recollection to be explained? Undoubtedly, faint sense impressions coming from without sometimes resuscitate involuntary memories, but our every-day life assures us that long past occurrences are also *deliberately* recalled by the mind itself. It tells us that we can employ the laws of association to reproduce at choice special series of events, and that according as they arise we can again select particular individuals from these series to form new starting-points. But clearly the mere persistence of modifications in the cellular substance of the brain could not account for this operation.[11]

This third element of memory involved in the act of recognition introduces us to the question: Is memory a sensuous or an intellectual faculty? Although recollection in man commonly involves intellectual activity, we have discussed memory here along with the sensuous powers of the mind because a large portion of the phenomena of this faculty do not transcend the order of sensuous life; and it is of the utmost importance that mere increase in refinement or complexity should not cause sense to be confounded with intellect, a mistake which is so often made in English philosophical literature.[12]

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[11] "The sensory cell is not *self-acting;* it does not of itself originate sensation. . And if it be not, we need, in default of impulse from without, impulse from an inner sphere of experience, where intellectual activity proceeds under laws quite different from those which apply in connection with purely sensory action." (Calderwood, ***The** Relations of Mind and Brain*, p. 282.)

[12] Dr. Bain, for instance, of his large volume on *The Senses and the Intellect*, devotes the half entitled *Intellect* to expounding the association of mental states. Now, in our view, this is in the main what intellect is ***not***. The laws of suggestion or association are

Neither the acquisition, nor the retention of sensuous impressions, nor even their automatic reproduction under the laws of suggestion, exceeds the range of sense. Nay, there is nothing incompatible with the nature of an exclusively sentient mind in the presence of a feeling that a revived image is familiar or has been presented to us before. A man whose intellectual activity is completely absorbed in some abstract train of thought may make a complicated journey through a city, or perform any other familiar mechanical operation, guided by sensuous memory and the hardly noticed impressions of various well-known objects. But besides such processes as these, man can acquire, retain, and reproduce rational cognitions; he can recall past acts, sensuous or rational; he can formally or explicitly compare the present representation with the past experience, and recognize identity or difference between them; he can form the notion of time; and he can by a reflective process of reminiscence localize an occurrence at a determinate date in the past. In all these operations intellect is essentially implied, and consequently we must admit a rational as well as a sensuous memory.[13]

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best exhibited in the purely automatic working of reproduction, and they account for the various operations of the brute consciousness; but they are in no way characteristic manifestations of the superior rational activity which constitutes *intellect*, though of course cognitions of an intellectual order may suggest each other.

[13] There has been much subtle discussion among the schoolmen as to the forms and modes of memory which are to be deemed sensuous or intellectual St. Thomas, in a well-known passage (*Qu. Disp. de Verit.* q. x. a. 3. c.), says: "Cognoscere præteritum *ut præteritum* est sensus," but the "ut preteritum" may have more than one signification. Suarez maintains that "intellectus rem cognoscit cum affectionibus seu conditionibus singularibus per-

The estimation of time and the definite ***localization*** of events in the past are executed mainly by the indirect reflective action of the intellect. We first measure time by the number and variety of changes through which our consciousness has passed. This is done implicitly rather than ex-

fectius multo quam sensus;" also that "Sensus novit præteritum tantum materialiter, intellectus vero formaliter." (*De Anima*, Lib. IV. c x. nn. 3, 4.) Amongst recent text-books of note, Lahousse asserts, "Absurdum est (dicere) memoriæ sensitivæ proprium esse apprehendere *præteritum determinatum, uti est præteritum.*" (*Psych.* p. 302), and he urges, "Ens præsens non apprehenditur a sensu tanquam præsens; apprehendi enim deberet ratio præsentiæ ut sic, quæ ratio abstracta non attingitur a sensu" (*Ib.* p. 301) Sanseverino defends a somewhat different view. St. Thomas appears at times to say that past events are cognized as past *per se* by sense, and only *per accidens* by intellect (loc. cit. *Disp. de Verit.*); elsewhere, however, he explicitly distinguishes between the remembrance of a past object and of the percipient act by which it was apprehended. The memory of the former he considers as *per se* sensuous, though *per accidens* it may belong to intellect. The proper object *per se* of intellect is the being or nature of things without reference to present, past, or future. Time is a particular determination merely incidental to an object, and is apprehended by the universal faculty only indirectly through reflexion. As regards a previous percipient act, however, it can be known *as past* by the intellect not merely thus *per accidens*, but *per se*. Still even here the definite chronological situation, like every other individual determination, is only indirectly apprehended by intellect through reflexion, and is accordingly merely *per accidens* the object of that faculty. St. Thomas thus seems to teach that the recurrence of a sensuous impression of an object may carry with it the feeling that this object has been apprehended before, and this feeling may even refer the occurrence to a definite point of the previous time series, just as an external sense may localize a body in space. The formal recognition, however, of agreement between a present representation and a past object or state must, on St. Thomas' principles, be deemed an act of intellect. This is the feature of memory most in Suarez' mind, and Dr. Gutberlet (op. cit. p. 108) would apparently account for some of the differences of opinion on the subject by the term "memory" being used by other writers mainly to signify reproduction apart from recognition. The reader wishing to study the question at length may consult St. Thomas, *Sum.* i. q. 79. a 6, *Qu Disp. de Verit*, q. x. a. 3, c, and *De Mem. et Rem.* l. 2; Suarez, *De Anima*, IV. c. x.; Lahousse, *Psych.* III. c. x. a. 5; Sanseverino, *Dynam.* c. vi. a. 2; Liberatore, *Psych.* c. i. a. 7.

plicitly. The child does not reflectively advert to its mental operations as to subjective modifications of itself; but glancing back to some particular occurrence it has a more or less clear consciousness of the number of intervening states. That it is on the movement of consciousness the calculation of time is based is evinced by the different estimates we form of the length of periods equal in duration, but unlike in the number and variety of remembered experiences which they contain. A week of exciting events, a month spent on a tour, and a sleepless night appear far longer than the same number of hours passed in our usual monotonous manner. For the same reason recent periods are exaggerated when compared with those more remote. But though the first consciousness of time is awakened by our becoming aware of change in our mental states, yet, from the naturally objective tendency of our minds, from our perception of the regular movement and periodic recurrence of certain events in the external world, and from the irregular character of our own feelings, we are led to measure duration not so much by these latter as by the corresponding orderly changes of the physical universe, and the seasons and years become the milestones of our past life.

The chief qualities which go to constitute a good memory are facility of acquisition, tenacity, and readiness of reproduction. These properties frequently exist in the same person in inverse degrees of excellence. The lawyer and the actor attain great perfection in the rapidity with which they can commit to memory the facts of a new case or a part in a new play, but in a short time the whole subject is again erased from the mind. The capacity of memory varies much in different individuals, and history affords us many examples of powers that seem to the ordinary mind marvellous.[14]

In connection with memory some authors are accustomed to treat of *expectation*, but the two states are widely different in kind. In recollection the essential element lies in the recognition of identity between a present representation and a former perception, but this is, of course, absent when we look towards the future. Expectation may take either of two forms. The term sometimes implies nothing more than a vague sensuous anticipation of an event, a state of mind which is explicable by means of the law of contiguous association. Thus, if a series of occurrences, A B C D . . . have frequently happened, or have left a vivid impression on the mind, the recurrence of any one of them tends to revive in imagination its successors, and the mere vivacity of such images tends to generate a belief in their realization. The illusion of perceiving before it actually occurs an event eagerly watched for, such as the starting of a race, is explained by the intensity of the suggested image which is taken for a real sensation; and the readiness and rapidity with which we apprehend an anticipated occurrence is due to the predisposition of the excited nerves to issue into the appropriate movement.

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[14] Ben Jonson, it is maintained, could repeat all that he had ever written, and most of what he had said. Scaliger learned by heart the *Iliad* and *Odyssey* in three weeks, and the whole of the Greek poets in three months. Pascal, it is said, could remember anything he had ever thought. Lord Macaulay could after a single attentive perusal reproduce several pages of a book, and discovered by accident that he could repeat the whole of *Paradise Lost* Cardinal Mezzoffanti knew forty-eight different languages, and many dialects. For a long list of great memories, cf. Hamilton. *Metaph* ii pp 225—227

Besides sensuous presentiment originating in previous association, we are capable of a higher form of intellectual belief in future events based on rational deduction from experience. This constitutes expectation in its most proper sense. It involves memory, the notion of time, and inference from cause to effect; but it can never acquire the certainty given in the act of remembrance. Hope expresses anticipation plus desire, while fear originates in dislike of the expected future; and both emotions, by intensifying the activity of the imagination, increase the force of belief. In localizing a future date just as a past one, we estimate time by the number and duration of intervening impressions.

HISTORICAL SKETCH.—The phrase, *Association of Ideas*, has played such an important part in the history of English Philosophy that it appears to us advisable to make a few additional remarks on the subject. The reality of *association* as a principle governing the faculty of recollection is undeniable, and has been recognized by philosophers from the time of Aristotle. In the light, however, of a hypothesis put forward to account for certain peculiar intellectual states, it seems to have been first advocated in this country by Hobbes, and later on with far greater ingenuity by Hume. It is in this second sense that Associationism has become the central tenet of the English school of thinkers which has thence received its title.[15]

Mental Association, as the universal condition of memory, was distinctly expounded and reduced to the three general laws of *similarity*, *contrast*, and *propinquity* in time, space, or some extrinsic relation, by Aristotle. In a very erudite article,[16] Hamilton vindicates for the Greek philosopher the honour of having first discovered and formulated these laws. We can only afford to cite a few sentences freely translated by Hamilton, but the whole chapter of the *De Memoria et Reminiscentia* dealing with the subject is well worthy of study. "Reminiscence," says Aristotle, "takes place in virtue of that constitution of our mind, whereby each mental movement (modification) is determined to arise as the sequel of a certain other. . . . When, therefore, we accomplish an act of reminiscence, we pass through a certain series of precursive movements, until we arrive at a movement on which the one we are in quest of is habitually consequent. Hence, too, it is that we hunt through the mental train excogitating what we seek from (its concomitant in) the *present* or *some other* (*time*), and from its *similar* or *contrary* or *coadjacent*. Through this process reminiscence is effected, for the movements (*i.e.*, mental modifications) are in these cases sometimes the *same*, sometimes at the *same time*, sometimes parts of the *same whole*, so that (starting thus) the subsequent movement is already more than half accomplished."[17]

St. Thomas, in his *Commentaries*, developes the doctrine of Aristotle in a manner which exhibits close study of the nature of mental association. The ultimate *cause* of remembrance, he repeats, lies in the native tendency of the mind to reproduce representations in the order of the original impressions.[18] He then passes on to amplify

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[15] On this distinction, cf. "Mental Association," by Croom Robertson, *Encyc. Brit.*

[16] *On Reid*, note D**.

[17] *On Reid*, pp. 899, 900.

[18] "Causa autem reminiscendi est ordo motuum, qui relinquuntur in anima ex prima impressione ejus, quod primo apprehendimus.... reminiscentiæ contingunt per hoc quod unus motus natus est post alium nobis occurrere."

Aristotle's treatment of the *mode* of reminiscence, and to expound more fully the general laws governing reproduction. The process of recollection may advance, he observes, along a time series of events, from the recent to the more distant, and *vice versa;* or starting from a known object it may be guided by any of the three indicated relations. At times remembrance is awakened by force of *similarity*, as when thinking of Socrates we are reminded of Plato, who resembled him in wisdom. At other times the bond of connexion is *contrariety*, as when the thought of Hector recalls that of his opponent Achilles. Finally, the third principle of suggestion is *vicinity* in space, or time, or some other form of propinquity. After illustrating by examples these three general laws, he goes on to indicate in a much clearer manner than Aristotle their further analysis and reduction: In all three forms of suggestion the ultimate ground of reminiscence lies in the connexion of the previous "movements" of the soul. Association by similarity is due to *identity* in mental modification subsisting between the similar experiences. Contrast is based upon the *simultaneity* of the two terms in apprehension. Local propinquity and other modes of contiguity are merely cases of partial *similarity;* impressions produced by adjacent objects overlap, and the common part in the revived state reproduces its ancient collateral features.[19] We have thus co-identity in *nature* and in *time*, or what Hamilton calls the laws of *direct* and of *indirect* remembrance, laid down by St. Thomas as the two general principles of association. Accordingly, notwithstanding the contempt which writers of the Associationist school have invariably exhibited towards the schoolmen, we find in these terse remarks of St. Thomas, now over six hundred years old, a statement and analysis of the Laws of Association virtually as complete and exhaustive as that given by any psychologist from Hobbes to Mr. Herbert Spencer.

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[19] "Hoc autem primum, a quo reminiscens suam inquisitionem incipit, quandoque quidem est *tempus aliquod notum*, quandoque *res aliqua nota*. (1) Secundum tempus quidem incipit quandoque a nunc, id est a præsenti tempore, procedendo in præteritum, cujus quærit memoriam. . . . Quandoque vero incipit ab aliquo alio tempore . . . et procedit descendendo. . . . (2) Similiter etiam quandoque reminiscitur aliquis incipiens ab aliqua re cujus memoratur, a qua procedit ad aliam, *triplici ratione:* (*a*) Quandoque quidem *ratione similitudinis;* sicut quando aliquid aliquis memoratur de Socrate, et per hoc occurit ei Plato, qui est similis ei in sapientia. (*b*) Quandoque vero *ratione contrarietatis;* sicut si aliquis memoretur Hectoris, et per hoc occurrit ei Achilles. (*c*) Quandoque vero *ratione propinquitatis cujuscunque;* sicut cum aliquis est memor patris, et per hoc occurrit ei filius. Et eadem ratio est de *quacunque alia propinquitate*, vel

Of the later scholastics, Vives goes most fully into the treatment of this subject, and it is scarcely too much to say that there is no form of association viewed as a condition of memory which he has not expounded and illustrated.[20]

The chief interest, however, in the history of the doctrine of mental association centres in modern psychology; and it is there that we find association advocated not only as a general condition of reproductive memory, but also as a philosophic principle adequate to explain the constitution of numerous important mental states. Locke, in the *Essay*, in 1685,

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societatis, vel loci, vel temporis; et propter hoc fit reminiscentia, *quia motus horum se invicem consequuntur.* (*a*) Quorundam enim præmissorum *motus sunt idem,* sicut præcipue *similium;* (*b*) quorundam autem *simul,* scilicet *contrariorum,* quia cognito uno contrariorum simul cognoscitur aliud; (*c*) quandoque vero quidam motus habent *partem aliorum,* sicut contingit in quibuscunque *propinquis,* quia in unoquoque propinquorum consideratur *aliquid quod pertinet ad alterum,* et ideo, illud *residuum,* quod deest apprehensioni, cum sit parvum, *consequitur motum prioris,* ut apprehenso primo consequenter occurrat apprehensioni secundum." (St. Thomas, *De Mem. et Rem* l. v.)

Moreover, a practical embodiment of the laws of suggestion, both primary and secondary, is given in the rules for memory elsewhere formulated —I. (*Similarity*). *Similitudinibus convenientibus* minus consuetis res abstractas tibi declara. II. (*Contiguity*). *Cum ordine* dispone quæ memoria tenere cupis III. (*Attention*). *Sollicite et cum affectu* addisce, quæ cupis rememorari. IV. (*Repetition*). Quæ rememorari tua multum interest ea *frequenter meditare.* (*Sum.* 2a 2æ q. 49. a. 1. ad 2.)

[20] Cf. Vives, *De Anima,* Lib. II. c. *De Mem. et Rem.* We have not space to quote, but the reader will find a number of passages cited from him in Hamilton's *Notes on Reid,* pp. 892, 893, 896, 898, 902, 908. A very little study even of these extracts will show how familiar to scholastic philosophers were many of the supposed discoveries of Hobbes, Hume, and later associationalist writers.

contributed the phrase *Association of Ideas*, as the title of a chapter dealing with peculiarities of character, but did little more on the subject. Hobbes had previously made occasional observations on the power of association, but it is clear from the terms and phrases which he employs, that, in spite of his vigorously expressed contempt for the schoolmen, he silently borrowed from them on this topic. In this country, nevertheless, it was not till Berkeley's writings appeared (1709—13), and still more decidedly in Hume's *Essay on Human Nature* (1728), that mental association was insisted on as a virtually omnipotent principle in the genesis of knowledge. But on the Continent, already in the middle of the seventeenth century, Pascal, and after him Malebranche, had indicated the extensive influence of mental association; and even Condillac was as early as Hartley, who is the recognized founder of the Associationalist school in this country. In his *Observations on Man* (1748), in connexion with a theory of neural vibrations, Hartley expounded a system of mechanical association, in which imagination, memory, judgment, reasoning, emotions, and passions, are all reduced to associations of sensations. Later on in the century, Associationism was advocated by Tucker in the science of Ethics, and by Alison in the sphere of Æsthetics. Approval and remorse, good and evil, beauty and ugliness, were all analyzed into pleasant and painful sensations associated in experience with certain actions and objects.

At the beginning of the present century James Mill, in his *Analysis of the Phenomena of the Human Mind* (1829), re-expounded the doctrines of Hartley and Hume, and may be styled the second founder of the school. Sensations, and ideas, which are merely faint reverberations of defunct sensations, worked up in various ways by force of association, and especially by that form of suggestion included under the *law of indissoluble association*, account for the sum-total of our mental possessions. Sensations or ideas, repeatedly recurring together or in close succession, and never apart, tend to combine in such an *indissoluble* or *insepa-*

rable manner that one necessarily or irresistibly suggests the other.[21] By a species of "mental chemistry" the contiguous states fuse or combine, so as to generate products utterly unlike the constituent elements. The visual appearances of objects come thus to suggest irresistibly their distance, and we imagine we *see* an object to be hard, soft, hot, cold, rough, or smooth. By this means are created such universal illusions, as the necessity of mathematical judgments, the unity of the mind, and the externality and permanence of a material world.

John Stuart Mill and Dr. Bain develope the same principles, and enrich their treatment with numerous ingenious illustrations. The effect of hostile criticism from various standpoints has been to modify very considerably the treatment of Psychology by the more recent representatives of associationism. Dr. Bain's chief contribution to the resources of the school was the allotment to the mind of a reservoir of spontaneous activity continually fed by the accumulation of superfluous muscular energy. By judicious management of this new fund, many deficits in the sensist theory of both the cognitive and volitional departments of mental life could, it was believed, be made good.

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[21] The terms *indissoluble* and *inseparable* are defective even as expressions of the associationist view. It is not maintained that the associated states are absolutely inseparable, since a reversal of previous experience is always possible. The *law of irresistible suggestion*, advocated as a better title by Mr. Murray, would be a less objectionable phrase to indicate the element of truth contained in the doctrine. The powerful influence of continuous association is indisputable, and the acquired perceptions of the senses which we have discussed in an earlier chapter illustrate its action, but mere association is utterly unable to account for the unity of the mind, or for the necessity of mathematical or metaphysical truths. The phrase, *mental chemistry*, is also inappropriate and misleading. The chief forms of mental action to which this name has been applied are: (*a*) The asserted subjective creation of an imaginary material world by the agglutination, solidification, and externalization of sensations and ideas; (*b*) the production of the alleged illusory *necessity* pertaining to certain judgments, *e.g.*, mathematical axioms. (*a*) Now, subjective feelings do not solidify or crystallize into a simulated material object. The true process, as we have shown in chapter vii., is one of *growth* in the perfection of our knowledge of real things. Successive sensations reveal new qualities of the object, and gradually elaborate cognition. The object, vaguely and obscurely apprehended in the primitive tactual or visual sensation, receives more complete determination by each subsequent impression. (*b*) That necessary judgments cannot be a result of association will be shown in a future chapter.

In still greater contrast to the views of James Mill and the earlier writers of the school, is the exposition of the Associationist system offered by Mr. Sully in his *Outlines of Psychology*.[22] The old doctrine of a purely passive mind, wherein sensations through a process of agglutination coalesce into all kinds of intellectual products, is completely abandoned, and instead we have ascribed to the mind active powers of attention, comparison, and judgment. This last act, too, is not, as with Mr. Bain, the "fact of similarity or dissimilarity"—the capability of experiencing like or unlike feelings—but the intellectual faculty of cognizing this relation of likeness or unlikeness. These considerable improvements, which bring the sensist theory of mental life more into harmony with the results of actual observation, and help to obviate some of the most telling objections urged against the unreformed doctrine, are, on the other hand, very dearly purchased from a logical point of view. It is difficult to see how the fundamental article of the Sensist school—the tenet that the mind is nothing more than a cluster or series of feelings—can be harmonized with the imported doctrine, which attributes to this "mind" the active power of discriminating, combining, and organizing these states. The truth is, the best part of Mr. Sully's description of mental operations belongs to an alien conception of the mind, and is utterly inconsistent with his general position as a sensist philosopher. The elder Mill, Condillac, and the other earlier advocates of Sensism, possessed at least the merit of understanding and frankly attempting to face the real problem for their school. Postulating only those assumptions which were legitimate to them, they sought to explain how, out of sense impressions passively received from without, our illusory belief in a permanent human mind, as well as in a material world, could be produced. The result was, as is virtually admitted by their descendants, a miserable caricature of the observed facts. The modern representative of the sect, while accepting the fundamental doctrine that the mind is nothing but an aggregate or series of feelings externally awakened, yet seems to imagine that he may, like his opponents, ascribe to this mind inherent activity. Such a procedure, of course, as was clearly apprehended by the earlier members of the school, is utterly incompatible with the essential principles of their system.

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[22] Cf. cc. ix. x.

From the laws of memory the general conditions of forgetfulness or obliviscence can be easily deduced. The converse of the primary laws of suggestion may be formulated in the statement that *events unconnected by either similarity or contiguity with present mental states usually lie beyond the sphere of recall.* The correlative of the secondary law is expressed in the proposition that *the tendency of an experience to lapse out of memory is in proportion to the feebleness of the original impression and the infrequency of its repetition.*[23] The third law of obliviscence enunciates the general fact, that *a mental impression becomes obliterated in proportion to the length of time, and the number and vivacity of the mental states which have intervened since its last occurrence or reproduction.*

Readings.—On Memory, cf. St. Thomas, *Comm. in Arist. De Mem. et Reminisc.;* also *Sum.* i. q. 79. a. 6 and 7; Suarez, *De Anima,* Lib. IV c. 10; Hamilton, *Metaphysics,* Lect. xxx. xxxi.; Carpenter, *Mental*

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[23] J. S. Mill uses the phrase, *Law of Obliviscence,* to describe an important element in the law of "inseparable" association, viz. the general fact that "when a number of ideas suggest one another by association with such certainty and rapidity as to coalesce together in a group all the members of the group which remain long without being attended to have a tendency to drop out of consciousness" (*Exam.* c. xiv p. 259) The evanescence of the separate letters and words of a printed page leaving us in possession only of its general purport is the favourite illustration. The phenomenon is merely an instance of the law of inattention. The amount of mental energy, and consequently the depth of the impression, devoted to the individual units is reduced to a minimum, as the whole force of our thought is concentrated on the significance of the entire passage.

Physiology, c. x. On the Physiology of Memory, cf. Carpenter, op cit pp. 436—448; Ladd, op. cit. Pt. II. c. 10, §§ 15—21. Some good remarks on the Materialist theory are to be found in Professor Calderwood's *Relations of Mind and Brain*, pp. 272—84. On Mental Association, cf. Hamilton, *On Reid*, notes D**, D***. On the Validity of Memory, J. Rickaby, *First Principles*, Pt II. c. vi. On Memory and Empiricism, cf. Ward, *Philosophy of Theism*, pp. xiv.—xvii. and 64—67. For a collection of curious anecdotes illustrating various aspects of these faculties, see Abercrombie *On the Intellectual Powers*, Pt. III. sect. 1.

CHAPTER XI.

SENSUOUS APPETITE AND LOCOMOTION.

In our classification of mental activities we have marked off as standing in strongest opposition to the cognitive operations of the mind the class of states embracing appetites, desires, impulses, volitions, emotions, and the like. There is no accepted English term which accurately expresses what is common to them all. The designation *active powers*, employed by Reid and Stewart, ought obviously to include the intellect. *Orectic* faculty—the literal transcription of the Aristotelian term—is too unfamiliar. Hamilton gave currency to the epithet *conative*, which emphasizes the idea of effort prominent in some of these acts; whilst others prefer the title *appetitive* faculty. These two last names seem to us on the whole exposed to fewest objections; however, it should be borne in mind that the phenomena of appetency include not only states of yearning for absent pleasures, but also the enjoyment of gratifications attained.

The term *Appetite* was used in a very wide sense by mediæval writers to denote all forms of internal inclination, comprehending alike the natural tendencies or affinities (*appetitus naturalis*) of plants and inorganic substances, which impel them towards what is suitable to their nature, and the feelings of conscious attraction (*appetitus elicitus*) in sentient and rational beings. The formal object of the appetitive faculty in this broad signification is *the good.* Under *the good* is comprised, not merely *the pleasant,* but everything in any fashion convenient to the nature of the being thus attracted. Continued existence, felicity, development, and perfection, together with whatever is apparently conducive to these ends, are all in so far good, and consequently a possible object of appetency; whilst whatever is repugnant to them is a mode of evil, and therefore a ground for aversion or the negative activity of the same faculty.

Of conscious appetite the schoolmen recognized two kinds as essentially distinct—*rational* and *sensitive.* The former has its source in intellectual, the latter in sensuous, apprehension.[1] The two faculties, however, do not act in isolation; desires and impulses in the main sensuous often embody intellectual elements, and we therefore deem it best to postpone the chief portion of our treatment of appetency to Part II. of the present book.

Modern writers commonly confine the term *appetite* to certain organic cravings. These arise from the physical condition of the body; they are mainly of a periodically recurrent character, and they are essential to the preservation of the individual or the species. The chief forms usually enumerated are those of hunger, thirst, sleep, exercise, and sex. All these activities are of the lower order of mental life, and have their source in sensation. Thus hunger springs from the uneasy feelings of the alimentary canal arising from privation of the nutriment on which its appropriate functions are exercised. The craving for sleep or physical activity is similarly awakened by fatigue or the consciousness of an accumulation of surplus energy. Besides these peculiarly organic appetites there is a tendency in all sentient beings to seek pleasure and shrink from pain in any form, and these impulses are the great protective agencies which guard the life of the individual and the race. The gregarious instinct, maternal affection, feelings of anger, jealousy, and fear, may also belong to the purely sensuous order of conscious life provided they contain no element of reflective activity, and it is in this form they are exhibited by brutes.

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[1] The scholastics also divided conative states into *appetitus concupiscibiles* and *appetitus irascibiles.* The appetitive side of the soul was investigated by mediæval writers mainly from the standpoint of Ethics or Moral Theology. The modern branch of study known as Æsthetics, the analysis of the mental states aroused by the contemplation of the beautiful and the sublime, and the dissection of our emotions, which take up so much room in psychological treatises of the present day, found little or no space in their speculations.

Locomotion.—Since movement is the outcome of appetency, it may be well to say a few words on the subject here. The organic machinery of bodily motion consists of the muscles and efferent or motor nerves ramifying throughout the system. The immediate physical condition of an action is a centrifugal or outgoing impulse along these nerve-fibres. The discharges of neural energy may proceed from several causes, and according to such distinct sources movements have been classified. Certain vital actions, such as the pulsation of the heart effected by the living organism itself independently of any stimulus from without, are styled *automatic*. The term *reflex* action is used to denote the involuntary reflexion along a motor nerve of an afferent impulse peripherally excited. It is movement in response to sensory stimuli without the intervention of any mental effort; such, for instance, is the act of coughing, or the enlargement of the iris with the diminution of light.[2] *Instinctive* action usually implies more than merely reflex or automatic movement. It presupposes a feeling of want and an element of effort as its cause. It is, too, of a vaguely purposive character; it is at times controllable; and in general it is psychologically more complex than either of the other species of movement.

We have thus *automatic* action which is usually unconscious, *reflex* action which may be unconscious or not, but is not caused by conscious effort, and *instinctive* action which is the result of conscious need. The first and second classes are involuntary; the third, though not the effect of positive volition, may at times be more or less subject to voluntary regulation and inhibition. Finally, there are *volitional* movements which are voluntary in the fullest sense of the word. In these last the external change is the direct effect of a positive act of will. Consequently movements may be classified according to their origin, their voluntariness, and their conscious or unconscious character thus:

MOVEMENT.	(*a*) *Automatic* (unconscious and uncontrollable)		*Involuntary.*
	(*b*) *Reflex* (uncontrollable)	Unconscious Conscious	
	(*c*) *Instinctive* (conscious)	Uncontrollable	
		Controllable	*Voluntary.*
	(*d*) *Volitional* (conscious and controllable)		

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[2] Automatic and reflex action are thus distinguished by Professor Ladd and, we believe, by the majority of physiologists Dr. Carpenter uses these terms frequently as equivalent. He distinguishes, however, with Hartley between *primary automatic*, that is, those actions due to an innate or original aptitude, such as coughing, circulation, &c., and *secondary automatic* or *habitual* action acquired by exercise but otherwise presenting all the features of reflex movement, *e.g.* the unconscious balancing of the body when walking. Impulsive action of this secondary automatic kind is sometimes called *instinctive*

The nature of the cause of automatic and reflex action is a question for Physiology to decide. Even instinctive action is partly a physiological, and only partly a psychological problem; but neither science has as yet thrown much light upon its origin. As regards volitional action, the psychical operation which excites the efferent neural impulse that results in such voluntary movement is not very clearly understood. Voluntary movement is by no means such a simple phenomenon as the speed with which the external execution follows the internal mandate in mature life might lead us to suppose. The first step in the process is the representation of the contemplated act, its aim, extent, direction, and rapidity. These various features, of course, usually enter only faintly into consciousness, but that none of them can be absent is evident on reflexion. However, this representation is not enough; there must be aroused in addition a certain muscular feeling. This new element is not merely a recipient or cognitive state, an apprehension of the movement, or straining, or relaxation of the muscles engaged. It is the consciousness of putting forth energy, and it has been described as a feeling of innervation. This consciousness is of an essentially active character, and constitutes the chief mental element in voluntary motion. Apparently it is over this act of innervation that the will exercises proximate control, and it is in the liberation of energy along the represented course, or in its inhibition, that the *fiat* or the *veto* of the will is exerted. By varying the intensity of the act of innervation, the range and rapidity of the movement is determined.

The question *how* an unextended volition can move a material limb brings us to a final inexplicability. That the soul is endowed with a locomotive faculty is simply an ultimate fact. Our life-long experience assures us that mind and body do interact, but how or why we cannot tell. This ignorance of the mode of a process is, as we have already pointed out, no ground for denying the known result. Even the selection by the soul of the right muscles or motor nerves to produce the appropriate act is an ultimate mystery. It has been asserted that the representation of the designed action is in reality a faint rehearsal of it, involving as physical correlate a feeble excitation of the nerves engaged in actual movement. Accordingly, by directing our attention to the represented state, it is supposed that we reinforce the strength of the representation, and intensify the accompanying neural tremor until the latter reaches the degree of excitement requisite to give rise to the actual movement of the limb. In favour of this hypothesis may be urged such facts as the tendency to pronounce words which we seek to vividly represent, and the feeling of itching to perform an action suggested in a lively manner to the imagination.

To this argument it is objected that, on the one hand, the antecedent representations of many of our most energetic actions are of the faintest and least obtrusive kind, and that, on the other, we often form vivid pictures of movements without their actual execution. It should, however, be remembered that the representative state supposed to be transformed into the subsequent actual movement is a *motor* or *muscular* phantasm. The visual image (or auditory image in the case of oral utterances) also present merely serves by association to awaken or sustain the former in existence. This collateral image, ordinarily the more conspicuous, may at times be comparatively faint, although the representation in terms of muscular consciousness possess considerable force. Since, therefore, the strength of this latter, which is the real agent, does not attract notice, the objection loses much of its plausibility. However, provided the originating efficiency of volition in voluntary movement be admitted, the precise nature of the process is of secondary moment. Consciousness assures us that in volitional movement the *fiat* of the will, which initiates the motor impulse, is something more than the augmentation of the ideal state by attention; it is *the mandate for a real action*,[8] and as such it must be accepted by every legitimate theory.

Readings.—On Appetite, cf. St. Thomas, *Sum.* i. q. 80; Suarez, *De Anima*, Lib. V. cc 1—4; Joseph Rickaby, *Moral Philosophy*, Pt. I c. iv.; Dr Stöckl, *Lehrbuch d Phil* §§ 18—20 On Movement, Dr. Gutberlet, *Die Psychologie*, Pt. I. c. iii.; Ladd, op. cit. pp 526—531; Carpenter, *Mental Physiology*, pp. 17—23.

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[8] Dr. Bain attempts to derive all voluntary control of later life from an original fund of spontaneity exhibiting itself at first in the one form of automatic *random* action. This gradually assumes definite and appropriate lines under the influence of the "Law of Self-Conservation"—the general fact that "pleasure is accompanied with heightened energy and pain with lowered energy" Fortuitous movements of a pleasant character consequently tend to sustain themselves, while painful ones become extinguished, "as when an animal moving up to a fire encounters the scalding heat with its depressing (*sic*) influence, and therefore has its locomotion suspended" (*Mental Science* p 80.) By repetition the lucky movements become associated with the pleasure attained or pain avoided, until the mere idea of such a pleasure is of itself able to secure the realization of the appropriate action When this stage is reached we have, according to Dr. Bain, *free voluntary control* This theory is, however, exposed to several fatal objections (1) Even granting Dr. Bain's assumptions, an original fund of spontaneity and the so-called law of self-conservation would never account for the rapidity of acquisition, and the complex purposive character of many acts of very early life both in animals and children (2) The alleged law, or at all events Dr Bain's application of it, is open to serious dispute. Gratification often tones down vital activity and excitement, while pain conversely augments it. Punishment is actually used to stir up energy, whilst agreeable and powerful pleasures are frequently exhausting. (3) Very many of the supposed purely spontaneous discharges of motor energy are the result of reflex action in response to trifling stimuli (4) Careful observation of children and young animals establishes the occurrence of a large amount of *instinctive* action of a vaguely *purposive* character from the beginning. The facility with which young lambs and calves learn such complicated movements as walking and finding their mother's udder disproves conclusively the random hypothesis in this case, and if so there can be no ground for importing fortuity into man. (5) Finally, self-control applies to the direction of course of thought as well as to physical movements, and chance gestures cannot be the parent here. Cf. Martineau, *A Study of Religion*, Vol. II. pp. 200—224; Sidgwick, *Methods of Ethics*, Bk. II. c. vi § 4.

CHAPTER XII.

FEELING.

A CONSIDERABLE portion of modern works on Psychology is usually devoted to the treatment of the phenomena allotted to the *Faculty of Feeling.* The words, *emotion, passion, affection, sentiment,* and the like, are employed to denote the acts of this third mental power.[1] We have deemed it on the whole most convenient to retain the term in common use, though we deny the necessity of assuming the existence of another ultimate generic faculty distinct from those of cognition and appetency.

In treating of this department of mental life it would be desirable to commence with a satisfactory classification of the several forms of consciousness styled emotional states. Unfortunately, however, no single plan of division has yet been put forward by any modern writer, which has met with acceptance even at the hands of his own disciples; and we may reasonably conclude that none of those many ingenious schemes, continually appearing at the present day, are likely to have a much more durable existence. Several of the emotions are of such a complex character, they are so generally tinged with foreign elements, they shade into each other by such gradual changes, and they vary so much in character at different times, at different ages, and in different persons, that nothing in the nature of a scheme in which they could be rigidly bounded off from each other is possible. Our best course, accordingly, we believe, will be to give here a short treatment of feeling understood as the *pleasurable* or *painful tone* of mental activities generally, showing at the same time that there is no ground for postulating a new faculty as source of this phenomenon; and in a later chapter we will examine in particular a few of the more important states usually classed as emotions.

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[1] The word *feeling* is used in several meanings: (1) To denote certain kinds of cognitive sensations, especially those of the faculty of *touch.* (2) To express the pleasurable or painful *aspect* of all species of mental energy. (3) To signify complex forms of mental excitement of a non-cognitive character. (4) As equivalent to a particular kind of rational cognition of an obscure character in which the mind has vivid certainty without knowledge of the grounds of this conviction. *Emotion* is employed as synonymous with *feeling* in the second and third meanings, more especially in the latter. *Passion* signifies an appetitive or emotional state, where the excitement reaches an intense degree. *Affection* usually denotes emotional states in which the element of liking or dislike is prominent; with some writers the term is confined to acts having persons for their objects. *Sentiment* signifies an emotion of an abstract or highly developed character. In ordinary language, especially in the adjectival form, it is contrasted with reasoned conviction and practical activity.

ARISTOTLE'S THEORY OF FEELING.—The subject of the nature and conditions of pleasure and pain, like so many other psychological problems, was grasped by Aristotle, over two thousand years ago, with such clearness, and treated with such fulness that he has left nothing of substantial importance to be added by any modern thinker

The doctrine of Hamilton or Mr. Spencer, for instance, is merely the old theory in new phraseology. We will, therefore, adhere closely to the account of the subject given by the Greek philosopher.

(1) *Essence of Pleasure.*—In opposition to Plato, who held that all pleasure is merely an escape from pain, and consequently of a *negative* or *relative* character, Aristotle teaches that there are *positive* or *absolute* pleasures.[2] Pleasure, he repeatedly asserts, is not simply relief from uneasiness, but a positive concomitant or resulting quality of the free and vigorous exercise of some vital energy. To each faculty, whether sensuous or intellectual, belongs an appropriate pleasure. Vision, hearing, and the activities of the other senses, are all productive of agreeable feeling, but still more so is intellectual speculation.

(2) *Intensity.*—The intensity of the pleasure depends partly on the state of the faculty or habit which lies at the root of the activity, partly on the nature of the object which forms the stimulus. In proportion as the energy of the faculty is greater, and its object more fitted to elicit lively response, so is the pleasure the keener. The most perfect pleasure results in the greatest delight. Further-

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[2] Admitting that the satisfaction of certain bodily cravings, such as hunger and thirst, produces agreeable feeling, Aristotle continues: "This does not happen in all pleasures; for the pleasures of mathematical studies are without (antecedent) pain; and of the pleasures of the senses those which come by smelling are so; and so are sounds and sights, and many recollections also, and hopes. By what then will these be generated? for there have been no wants of anything to be supplied." (*Ethics*, Lib. X. c. 3.)

more, pleasure is not merely an effect of the exertion of the mental power: it reacts upon the energy from which it springs, stimulates that energy, and perfects its development. Agreeable feeling, in fact, is at once the result and the final complement of vital energies.[3]

(3) *Duration.*—The duration of a pleasure is similarly determined by the nature of the stimulus and the condition of the faculty. So long as a harmonious relation subsists between them—so long, in fact, as the faculty is fresh and vigorous and the action of the stimulus suitable—the energy will be agreeable. For, there will then be an easy spontaneous activity in harmony with the nature of the mental power. The continuity, like the intensity of pleasure, is thus both subjectively and objectively conditioned; and, accordingly, the agreeable consciousness cannot last for ever. No human faculty is capable of incessant exertion, and when an energy becomes relaxed or fatigued, the corresponding pleasure decreases, and will soon pass into the state of pain. This decay of vital force during incessant action explains the charm of novelty. For, whilst

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[3] "But since every sense energizes with reference to its object, and that energizes perfectly which is well disposed with reference to the best of all the objects which fall under it, . . this must be the most perfect and the most pleasant; for pleasure is attendant upon every sense, as it is also upon every act of intellect and contemplation, but the most perfect is the most pleasant, and the most perfect is the energy of that which is well-disposed with reference to the best of all the objects that fall under it Pleasure, therefore, perfects the energy. But that there is a pleasure in every act of the perceptive faculty is evident; for we say that sights and sounds are pleasant; and it is also evident that this is most so, when the perceptive faculty is in the most efficient condition, and energizes on the most suitable object" (*Ethics*, Lib X. c. iv.)

an experience is new, the efficiency with which our mental powers are applied to it is at a maximum, but as time goes on vigour diminishes, and the operation becoming less perfect, the pleasure proportionately declines. Agreeable feeling is, therefore, the concomitant of the exercise of our faculties, as long as that exercise is spontaneous and unimpeded.

(4) *Qualitative variation.* — Pleasures, Aristotle continues,[4] may be held to differ in *kind* in so far as they are perfections of specifically different energies. Intellect and the several senses are essentially different faculties, their operations must similarly differ, and consequently the pleasures which result from and perfect these latter must also differ in kind. Conflicting pleasures, or rather the pleasures of conflicting energies, neutralize each other, and may even result in positive pain. This follows inevitably from the nature of pleasure. For when several faculties interfere with each other, their energies are deteriorated, just as if they were improperly exerted or acted upon by an unsuitable stimulus. But when our activities are exhausted and impeded, the resulting state is necessarily disagreeable. The moral rank of the feeling is determined by that of the faculty to which it belongs, superior energies begetting nobler pleasures.

From this analysis of pleasure we derive at once a correlative doctrine of pain. The latter mode of consciousness arises by excess or defect in the exercise of a faculty, or by imperfection or unsuitability in the nature of the object. Excess and defect may refer either to the duration or to the degree of the excitement. Both states are also dependent on the natural scope and efficiency of the faculty, its acquired habits, and its actual condition of health and energy. It may then be enunciated as a *general law* that: (1) *Pleasure is an accompaniment of the spontaneous and healthy activity of our faculties, and pain is the result of either their restraint or excessive exercise.* A further generalization may be added that (2) *Pleasure augments with increasing vigour in the operation up to a certain normal medium degree of exertion, and progressively diminishes after that stage is passed: farther on the pleasure disappears altogether, and beyond this line pain takes its place.*[5]

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[4] Cf c v

This explanation of the nature of pleasure and pain, enables us to see the erroneousness of the assumption of a third faculty radically distinct from those of cognition and appetency, put forward to account for the phenomena of *feeling* in this sense. Pleasure and pain are not special products of a new activity. They consist in the harmonious or inharmonious, the healthy or unhealthy working of any and every mental power. We cannot separate the agreeable or disagreeable character of our various operations from these operations and then set it up as an act of a fresh faculty. Pleasure and pain are merely *aspects* or *phases* of the fundamental energies of the mind. We are warranted in postulating a special perfection in the soul as a ground for tactual or gustatory consciousness, but we may not gratuitously call into existence additional faculties to inform us of the varying perfection of these activities. The pleasure which passes into pain with increase of stimulation, is but the positive as distinguished from the negative aspect of the function, not the manifestation of a new power.

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[5] The reader can easily justify for himself the general application of this law by reflecting on various activities, such as those of physical pursuits, of the senses, of the imagination, and of intellect. The most striking exception is found in the case of a few experiences—*e.g.* disagreeable tastes and smells—which appear to be unpleasant even in the faintest degree. This circumstance is ascribed to the fact that some stimuli have an essentially noxious or corrosive effect on the sense-organ. The excessive or painful limit is thus virtually identical with the threshold of consciousness. The number, however, of such excitants is probably much less than is commonly supposed. This is shown by the fact, that several of our worst smelling and tasting substances—certain acids for instance—in diluted forms contribute to the production of very agreeable mixtures.

We do not believe, however, that this third species of faculty would have been invented, or at all events would have found much acceptance, if the word *feeling* was used solely to signify this variable colouring of psychical processes. It is because this hypothetical faculty of feeling offered a very convenient asylum with elastic boundaries, whither many complex and obscure emotions could be easily relegated, that psychologists have been led with such facility to agree in the unjustifiable assumption. But the emotions will be shown to have still less claim to an origin essentially distinct from the cognitive and appetitive faculties, whilst were they actually proved to be reducible to a new unanalyzable activity, it would still be hard to see how sensibility to the agreeable and disagreeable effects of sugar and mustard is to be brought under the aptitude lying at the root of the sentiments of awe, surprise, or jealousy. Yet Hamilton and other advocates of the tripartite classification appear to be utterly unaware of this serious objection to their scheme.

Readings.—For Aristotle's theory of Pleasure and Pain, see his *Ethics*, Lib. X. cc. 1—5; St. Thomas, *Comment.* ll. 1—9; and Hamilton, *Metaphysics*, Lect. xliii. On Feeling, cf. Jungmann, *Das Gemüth*, §§ 53—60, 83, seq.

PSYCHOLOGY.

BOOK I.

EMPIRICAL OR PHENOMENAL PSYCHOLOGY.

PART II.—RATIONAL LIFE.

CHAPTER XIII.

INTELLECT AND SENSE.

HITHERTO we have been treating mainly, though not exclusively, of the sensuous faculties of the mind; we now pass on to the investigation of its higher activities. From the earliest stages of psychological speculation there have been found advocates of the view that there is no essential distinction between Sensuous and Rational life, and even Aristotle could speak of ancients who said that thought and feeling are the same thing.[1] There is thus nothing new or original in the fundamental tenet of that school which claims to represent the most advanced scientific thought at the present day. So far from this doctrine being the peculiar result of a superior degree of mental development, the history of philosophy proves that it found an easy acceptance in the lowest grades of intellectual culture, and among the crudest and most superficial of man's attempts at psychological speculation.

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[1] Καὶ οἵγε ἀρχαῖοι τὸ φρονεῖν καὶ τὸ αἰσθάνεσθαι ταὐτὸν εἶναι φασιν.

The philosophical sects, ancient and modern, opposed to the main thesis of the present chapter, and who have been variously described as Sensational, Associational, Materialistic, Phenomenalistic, and Empirical,[2] agree in the primary dogma that all knowledge is ultimately reducible to sensation. According to them the mind possesses no faculty of an essentially supra-sensuous order. All our most abstract ideas, as well as our most elaborate processes of reasoning, are but sensations reproduced, aggregated, blended, and refined in various ways.

In direct opposition to this theory we maintain that the mind is endowed with two classes of faculties of essentially distinct grades. Over and above Sensibility it possesses the power of Rational or Spiritual Activity. As Sir John Davies quaintly puts it—

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[2] These several epithets emphasize special characteristics which are, however, all consequences of the chief doctrine. The word *sensationalism*, and its cognates, mark the attempted analysis of all cognition into sensation. *Materialism* points to the fact that on the sensist hypothesis we can know nothing but matter, and that there is no ground for supposing the human mind to be anything more than a function or a phase of an organized material substance. *Phenomenalism* calls attention to the circumstance that by sense alone, and consequently according to the sensational theory of knowledge, we can never know anything but phenomena —the sensuous appearances of things. *Empiricism* (ἐμπειρία, experience) accentuates the assumption of the school that all our mental possessions are a product of purely sensuous experience. The stress laid by its leading representatives in this country on the principle of *mental association* has caused them to be styled the *Associationalist* school

> There is a soul, a nature which contains
> The power of sense within a greater power
> Which doth employ and use the sense's pains,
> But sits and rules within her private bower.[3]

The term *Intellect*, with the adjective *Intellectual*, was formerly retained exclusively to denote the cognitive faculty of the higher order. The word *Rational* also designated the higher cognitive operations of the mind, but it frequently expressed all forms of spiritual activity, as in the phrases *Rational Will* and *Rational Emotions.* The term *Reason* is used sometimes to signify the total aggregate of spiritual powers possessed by man,[4] sometimes to mean simply the intellectual power of understanding, and sometimes to express the particular exercise of the understanding involved in the process of ratiocination, or reasoning. *Reasoning* and *Understanding* do not, however, pertain to different faculties. The former is but a series of applications, a continuous exercise of the latter. The *Rational Appetite* or *Will* is itself a consequence of the same power, so we must look upon Intellect as the most fundamental of the higher faculties of the soul. The words *Intellect* and *Intellectual* we intend to retain exclusively for this superior grade of mental life, and we shall thus avoid the lamentable confusion caused by the modern use of these terms as signifying all kinds of cognition, whether sensuous or rational.

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[3] *On the Immortality of the Soul*

[4] In this general sense the possession of *reason* is said to separate man from the brute. Some writers, *e.g.* Coleridge, would define *reason* as the power of immediately apprehending truth by *intuition*. Such a usage is, however, contrary to ordinary language The verb *to reason* and the participle *reasoning* show that it is not the contemplative, but the discursive activity of the intellect. First truths are apprehended by the *understanding*. (Cf. Whewell, *Lectures on Moral Philosophy*, Lect. xiv. Appendix.)

So far, however, we have merely asserted a difference in kind between Sense and Intellect; it is now our duty to prove our doctrine. By affirming the existence of a faculty specifically distinct from that of sense, (we mean to hold that the mind possesses the power of performing operations beyond the scope of sense. We maintain that many of its acts and products are distinct in kind from all modes of sensibility and all forms of sensuous action whether simple or complex; and that no sensation, whatever stages of evolution or transformation it may pass through, can ever develope into thought.) We have already investigated at length the sentient life of the soul, and to it we have allotted the five external senses, internal sensibility, imagination, sensuous memory, and sensitive appetite. The superiority of the spiritual life will be established by careful study of the nature and formal object of its operations. Intellect we may define broadly as the *faculty of thought*. Under thought we include attention, judgment, reflexion, self-consciousness, the formation of concepts, and the processes of reasoning. (These modes of activity all exhibit a distinctly supra-sensuous element.)// In order to bring out the difference between intellect and sense, we will say a few words on each of these operations.

ATTENTION.—By *attention* is meant the special direction of the cognitive energy of the mind towards something present to it, or in scholastic language *applicatio cogitationis ad objectum.* The word is sometimes used in a vague sense to signify the fact of being more or less vividly conscious of the action of a stimulus; but in its strict signification it implies a secondary act, an interior reaction of a higher kind superadded to the primitive mental state. When from a condition of passive sensibility to impressions we change to that of active attention, there comes into play a distinctly new factor. In the former state the mind was wholly excited and awakened from without, in the latter it presents a contribution from the resources of its own energy. In this exercise of attention an additional agency which reacts on the existing impressions is evoked into life, and aspects and relations implicit in the original impressions are apprehended in a new manner. The mind grasps and elevates into the region of clear consciousness hitherto unnoticed connexions which lie beyond the sphere of sense. It fixes upon properties and attributes and holds them steadily up for separate consideration, while the uninteresting qualities are for the time ignored.

This complementary phase of attention by which the neglected features are ignored is called by modern writers *abstraction.* It is the necessary counterpart of the former. By the very act of concentrating our mental energy on certain aspects of an object we turn away from others. Both the positive and the negative side of the activity manifest its difference from sense. Thus, suppose an orange has been lying on the table before me. I have for some time been conscious of its presence, but I have not specially directed my attention towards it. Now, however, some circumstance or other, a thought originating within the mind or a movement without, awakens the intellect, and immediately the object has a new reality for me. I advert to the shape of the fruit, and, abstracting from its remaining properties, I notice its likeness to other objects described as spherical. Again my attention centres on its colour, and I compare its similarity in this respect with other things present or absent. In like manner I may think of its weight, its probable taste or smell, and compare it under any of these respects with other fruits, neglecting for the time all the rest of its attributes. Now in all these operations something more is implied than sensation. A sensation can neither attend to itself nor abstract from particular attributes, and it can still less apprehend relations between itself and its fellows.

Or, suppose I am suffering from the pain of tooth-ache, I can advert to it or try to turn my attention away from it with more or less success. But this attention is not the same thing as the feeling. I can concentrate my observation on the peculiarly aching character of the latter. I can consider its likeness and unlikeness to the sensations of a scald or a needle-prick. I can estimate its superiority in intensity over previous states. In fact, I am conscious throughout of a cognitive activity distinct from the mere sensation, and which presupposes before it can operate that sensation or its reproduced image. The greater intensity of a sensation is not identical with the act of attention, though it may often awaken the latter. For we can attend to the weaker of two impressions, and the vividness of the sensation sometimes even obscures the relation or special aspect which is at the time the formal object of the act of attention. Attention, moreover, is not merely a volition or act of will. On the contrary, it is that upon which the will acts; it is cognitive energy as directed by the will upon a previous state. Thus, in attending to the tooth-ache, the pronouncement of the will is not, "I wish to feel more pain or less pain," but "I wish to turn my attention towards or from this pain." Becoming an object of thought, the feeling may, of course, then again become an object of will.

COMPARISON AND JUDGMENT.—But it is as exercised in explicitly *comparative* and *judicial* acts that the supra-sensuous nature of attention is most clearly manifested. We fix upon a certain attribute of two or more objects, and comparing the objects pronounce them to be alike or unlike in this point. This judgment is evidently distinct from the sensation or image of either object, though it presupposes sensations or images of both. It implies, in fact, a mental act distinct from the related impressions by which the relation subsisting between them is apprehended. To affirm that the taste of a certain claret is like that of sour milk, or that the earth resembles an orange, there is required in addition to the pair of compared ideas a superior force which holds them together in consciousness, and discerns the relation of similarity between them. Neither the mere coexistence, nor still less the successive occurrence of two impressions, could ever result in the perception of a relation between them, unless there be a third distinct activity of a higher kind to which both are present, and which is capable of apprehending the common feature.[5] A change in our feelings or sensuous consciousness is possible, and, as a matter of fact, often takes place without the act of intellectual attention which gives rise to the judgment. For the consistent sensationalist, who necessarily dissolves the mind into a series of conscious states devoid of all real unity, not only is the conviction of personal identity throughout our life a hallucination, but even the simplest act of comparison effected between two successive ideas is a sheer impossibility.

UNIVERSAL AND ABSTRACT CONCEPTS.—Again, in the formation of abstract and universal concepts, which completely transcend the scope of sense, the activity of the intellect is manifested. By no one has the inability of the imagination to form universal notions and concepts been better shown than by the writers of the sensationalist school itself. Berkeley, in an oft-cited passage, declares that whatever we imagine must have some definite size, colour, shape, and the rest.[6] We cannot form an image representing a man of no particular colour or size, nor a triangle which is neither obtuse-angled, acute-angled, nor right-angled. Therefore, it is concluded, we cannot form any truly universal concept.

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[5] "A feeling qualified by a relation of resemblance to other feelings is a different thing from an idea of that relation, different with all the difference, which Hume ignores, between feeling and thought, between consciousness and self-consciousness" (Cf Green, *Introduction to Hume's Treatise on Human Nature*, § 213) The astounding blunder of confounding the sensuous capacity of *experiencing* like or unlike impressions with the intellectual power of *recognizing* their likeness or unlikeness was practically universal among the sensist psychologists of this country previous to Mr Spencer

The legitimate inference, however, is not this, but a very different one—to wit, that the sensist assumption regarding the nature of mental activity is false. Abstract and universal concepts we undoubtedly possess; they are the necessary materials of science. Without them general knowledge would be impossible. Consequently, we must be endowed with some power capable of forming such ideas. But in the catalogue of faculties owned by the sensationalist school no such power is to be found. *Ergo*, that inventory is incomplete. The ideas of substance, of causality, and, in fact, all universal concepts are beyond the capacity of sense or imagination. But, argues the sensationalist, since in my view of the mind sense and sensuous imagination are the only powers we have got, therefore it follows logically we really have no such ideas. The reply is obvious, since *de facto* we do possess these ideas, and since your view of the mind cannot account for them; why, then, your conception of the mind is wrong. There must be some faculty omitted from your list.

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[6] "Whether others have this wonderful faculty of *abstracting* their ideas, they best can tell; for myself I find I have a faculty of imagining or representing to myself the ideas of those particular things I have perceived, and of variously compounding and dividing them. I can imagine a man with two heads, or the upper parts of a man joined to the body of a horse. I can consider the hand, the eye, the nose, each by itself abstracted and separated from the rest of the body. But, then, whatever hand or eye I imagine, it must have some particular shape and colour. Likewise the idea of man that I frame to myself, must be either of a white, or a black, or a tawny, a straight or a crooked, a tall or a low, or a middle-sized man." (*Principles of Human Knowledge.*) The passage is directed against a confused paragraph in Locke's *Essay*, Bk IV. c. vii. § 9. Berkeley confounds the *phantasm* of the imagination with the intellectual *concept* We cannot form an abstract or universal phantasm; but the intellect most certainly does apprehend universal ideas, which abstract from varying accidental qualities. The ethical thesis, "Man is responsible for his acts," or any other such general scientific proposition, involves a notion equally applicable to the straight and crooked, black, white, or tawny, &c.

To establish the existence of universal notions we can only appeal to each one's own experience. When we use the terms man, cow, triangle, iron, virtue, we mean something. These expressions have a connotation, a meaning which is more or less perfectly apprehended by the mind. Now the mental act by which the connotation is grasped is the universal concept. There accompanies the use of these words a sensuous representation of the fancy picturing some individual specimen, or a confused group of specimens; but it is neither about this individual example, nor about the oral term that our judgments are enunciated. When we say, "The cow is a ruminant," "The whale is a mammal," "The sum of the angles of a triangle are equal to two right angles," or "Truth is a virtue," we speak not of the definite singular picture in the imagination, and still less of the vocal word. We do not mean this whale, or that cow, or this triangle, but every whale, every cow, and every triangle. Whilst the fancy *pictures* an individual the intellect *thinks* the universal, and this *thought* is the *general notion* or *concept.* The higher faculty seizes on the essential features which constitute the common nature of the class, and our consciousness of this community is the universal idea. It was long ago justly insisted on by Plato, and before him by Parmenides, that mere sense could never afford general knowledge, and that without universal concepts science is impossible. The penetrating mind of Hume, the acutest thinker of the sensist school, clearly saw this, and accepted the conclusion that even the mathematical sciences can only afford approximate truth.[7] The existence of universal ideas or concepts we must thus consider as established.

NECESSARY JUDGMENTS.—Among judgments in general, which exemplify the activity of a higher power than sense, there are a special class commonly spoken of as *necessary judgments,* which demonstrate with peculiar cogency the working of intellect. The mind affirms as *necessarily* and *universally* true, that "two things which are equal to a third *must* be equal to each other," that "nothing can begin to exist without a cause," that "we ought never to do evil," that "two straight lines *can never* enclose a space," that "three and two *must* always make five," and so on of a variety of other necessary propositions. A careful examination of judicial acts of this kind will manifest that they express truths of a different nature from that contained in the assertion or denial of a particular concrete fact. (These truths hold necessarily and universally. They are moreover objectively valid: they are independent of my perceiving them. Their contradictory is absolutely unthinkable.) It is not merely that I cannot *conceive*—in the sense of being able to *imagine*—the opposite. It is not that I am under a powerful persuasion, an irresistible belief on the point. It is not that one idea inevitably suggests the other. There is something distinctly over and above all this.

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[7] "When geometry decides anything concerning the proportions of quantity, we ought not to look for the utmost precision and exactness. None of its proofs extend so far. It takes the dimensions and proportions of figures justly, but roughly, and with some liberty. Its errors are never considerable, nor would it err at all did it not aspire to such absolute perfection." (Hume, *Treatise on Human Nature,* p. 350; cf. also Green's *Introduction,* §§ 273, 274.) Mill and later disciples of the school, whose scientific faith is stronger than their regard for consistency, try to give mathematics a more respectable appearance. On the value of that attempt, cf. Jevons, *Contemp. Review,* Dec. 1877; Ueberweg's *Logic,* § 129, and Appendix, § 15; and Courtney's *Metaphysics of Mill,* c. viii.

The blind man cannot conceive colour. A few centuries since most people would have found it hard to believe that people could live at the other side of the earth without tumbling off. On the other hand, a man's name, or his voice, irresistibly revives the representation of his face; and the appearance of fire inevitably awakens the expectation of heat. Yet in the former cases the mind after careful reflexion does not pronounce the existence of an absolute *impossibility*, nor does it assert in the latter a *necessary* connexion. We cannot affirm them to be impossible or necessary, because the intellect does not clearly apprehend any such impossibility or necessity. But it is completely different in the class of the judgments we have indicated above. The moral law must hold for *all* intelligence, the principle of causality and the axioms of mathematics must be *necessarily* and *everywhere* true. Now this necessity cannot be apprehended by sense. (The sensuous impression is always of the individual, the contingent, the mutable. It informs us that a particular fact *exists*, not that a universal truth *holds*.) Snow may be black, ground glass may be wholesome and nutritious food, and a number of the laws of physical nature may be changed every twelve months in distant stellar regions; but the truths of arithmetic and geometry, the principle of causality, and the moral law are as immutable there as with us. This immutability is distinctly realized by the mind, and such realization is certainly not explicable by mere sense.

REFLEXION AND SELF-CONSCIOUSNESS.—Lastly, the act of reflecting upon our own conscious states is essentially beyond the sphere of sense. We find that we can observe and study our own sensations, emotions, and thoughts. We can compare them with previous states, we can recognize them as our own; and we can apprehend the perfect identity of the subject of these states with the being who is now reflecting on them, the agent who struggles against a temptation, and the agent who knows that he is observing his own struggle. Every step of our work so far has involved the reflexive study of our own states, and consequently the exercise of an intellectual power. To analyze, describe, and classify mental phenomena an activity distinct from and superior to sense is required, and it is only because we are endowed with such a supra-sensuous faculty that we can recognize ourselves as something more than our transient states. The teaching of the sensist school from Hume to Mill is logical at least on this point. They fully admit that if their assumption is true, if the only cognitive faculty possessed by the mind is sensuous in character, then it inexorably follows that the mind must be conceived as nothing more than sensations and possibilities of sensations.

These various forms of mental activity, attention, abstraction, the perception of relations, comparison, judgment, the formation of universal and abstract conceptions, the intuition of the necessary character of certain judgments, and reflexive observation of our own states, demonstrate the existence in the mind of a higher cognitive faculty than that of sensuous knowledge. This superior aptitude of the soul is what the scholastic philosophers styled the *intellect;* and they described it as a *spiritual* or *inorganic* faculty in opposition to *sense,* which they affirmed to be *organic, corporeal,* or *material.* By these latter epithets, however, they did not mean to imply that sensuous life is similar in kind to the forces or properties of matter, or to the physiological functions of the organism. They merely intended to teach that all sensuous states have for their proper objects material phenomena, and are exerted by means of a bodily organ. External and internal sensibility, imagination, and sensuous memory are all essentially or intrinsically dependent on the organism. Thus sensations of touch, or phantasms of colour, are possible only to a soul that informs a body, and can only be elicited by modification of an animated system of nerves. It is, therefore, legitimate to say that the eye sees, and the ear hears, or better, that the soul sees and hears by means of these instruments. On the other hand, by describing the activity of intellect as spiritual or inorganic, the scholastics implied that it is a function of the mind alone; that unlike sentiency it is not exerted by means of any organ.

It seems to us incontestible that when properly understood this is the true doctrine. It is false to say that the brain thinks, or even that the mind thinks by means of the brain, although we may allow the phrase that it sees by the instrumentality of the eye or hears by that of the ear.[8] To establish this it is only necessary to revert to the points already considered. First as regards self-consciousness, the subject of this activity must be of a spiritual or incorporeal nature. For in such an operation there is realized a species of perfect identity between agent and patient which is utterly incompatible with any form of action that pertains to a corporeal organ. Thus, I find that I can not only think or reason about some event, but *I*, the being who thinks, can reflect on this thinking; and, moreover, *I* can apprehend myself who am reflecting, and who know myself as reflecting, to be absolutely identical with the being who thinks and reasons about the given event. But, evidently, such an operation cannot be effected by a faculty exerted by means of a material organ. One part of matter may act upon another, it may attract, or repel it, it may be reflected or doubled back upon it: but the same atom can never act upon, or reflect upon itself. The action of a material atom must always have for its object something other than itself. This indivisible *unity of consciousness*, exhibited in the act of knowing myself, is therefore possible only to a *spiritual* agent, a faculty that does not operate by means of a material organ.

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[8] "When *organs of understanding or of reason, instruments of judging and thinking* are spoken of, we confess that we have no idea either what end such theories can serve, or what advantage there could be for the higher intellectual life in all this apparatus of instruments. None of these relating energies (rational activities) from whose inexhaustibly varied repetition all our knowledge is derived can be in the smallest degree promoted by the co-operation of corporeal force.' Cf. Lotze, *Microcosmus* (English Trans.), p. 323.

Again, the characteristic notes of the organic or sensuous state consist in its representing a concrete material phenomenon, and in its being aroused by the impression of the object on the organ. The intellectual act, on the contrary, whether it manifests itself in the shape of the universal concept, of attention to relations, or in the apprehension of necessity, does not represent an actual concrete fact, and is not evoked by the action of the material stimulus. The formal object of *sense* is the concrete individual: that of *intellect* is the abstract and universal.

An organic faculty can only respond to definite corporeal impressions, and can only represent individual concrete objects. But universal ideas, abstract intellectual relations, and the necessity of axiomatic truths do not possess actual concrete existence, and so cannot produce an impression on any organ. Yet consciousness assures us that they are apprehended by us; consequently, it must be by some supra-organic or spiritual faculty. We have thus proved the existence of a supra-sensuous or spiritual form of life in the cognitive region of the mind: later on, when dealing with Free-will, we shall establish in the sphere of appetency a similar truth.

In asserting that the intellect is a spiritual faculty, we do not of course imply that it is in no way dependent on the organism, any more than in maintaining the freedom of the will we suppose this latter faculty to be uninfluenced by sensitive appetite. It is indisputable that exhaustion of brain power accompanies the work of thinking; but the fact that the exercise of imagination or of external sense forms a *conditio sine qua non* of intellectual activity, accounts for such consumption of cerebral energy. Although intellect is a spiritual faculty of the mind, it presupposes, so long as the soul informs the body, the stimulation of the organic faculty of sense. This was expressed in the language of the schools by saying that intellectual activity depends *extrinsically* or *per accidens* on the organic faculties. The universal concept, the intellectual judgment, the act of reflexion, are not, like sensation, the results of the stimulation of a sense-organ, but products of purely spiritual action. The inferior mode of mental life is awakened by the irritation of sentient nerves, the superior activity is due to a higher reaction from the unexhausted nature of the mind itself; and the ground for this reaction lies in the fact that the same indivisible soul is the root of both orders of faculties. Intellectual cognition always involves *self-action* on the part of the mind, but the conditions of such self-action are posited by impressions in the inferior recipient faculties. The nature of the process will be more fully described in chapter xv.

The doctrine expounded in the present chapter is on the one hand of such vital importance, and on the other so completely unfamiliar to the student whose reading has been confined to the current psychological text-books of this country, that we deem it well worth while, for the better enforcement of our teaching, to cite a few passages from foreign philosophers of note. To bring out more convincingly the reality of the distinction for which we contend, we will select as our witnesses two writers of completely independent currents of thought, and even profoundly opposed in their general views, yet both possessed of great power and accuracy of psychological observation. We will start with Balmez, the brilliant and original Spanish metaphysician of the first half of this century, and we will then pass to Lotze, the ablest recent representative of the combined Hegelian and Herbartian schools, who in addition holds high rank in physiological science.

The Fourth Book of Balmez' *Fundamental Philosophy*, is in great part devoted to the treatment of the present question, but we can here afford space for only a few paragraphs. In chapter ii. Balmez examines the sensational psychology of Condillac, and his criticism of that author applies with equal justice to the entire empirical school of this country from Hume and

Hartley to Dr. Bain and Mr. Sully. In the conception of the mind held in common by all these writers sense is the sole parent and source of all knowledge. There is no rational activity essentially distinct from, and superior to, that of sense. The formation of concepts, the operations of comparison and judgment, and the application of thought in the act of attention, are merely sensations coalescing or conflicting in a fainter or more vivid stage. Balmez' observations on the system of the original parent of French sensism will, consequently, be very much to our purpose. After a brief account of Condillac's hypothetical statue, which, endowed at first with a single mode of sensibility, gradually developes higher forms of mental power, the Spanish philosopher lays bare the deficiencies of the sensist doctrine:

"Condillac calls *capacity of feeling*, when applied to the impression received, *attention.* So if there be but one sensation there can be but one attention. If various sensations succeeding each other leave some trace in the memory of the statue, the attention will, when a new sensation is presented, be divided between the present and the past. The attention directed at one and the same time to two sensations becomes *comparison.* Similarities and differences are perceived by comparison, and this perception is a *judgment.* All this is done with sensations alone; therefore attention, memory, comparison, and judgment are nothing but sensations transformed. In appearance nothing clearer, more simple, or more ingenuous; in reality nothing more confused or false. First of all, this definition of attention is not exact. The capacity of feeling, by the very fact of being in exercise, is applied to the impression. It does not feel when the sensitive faculty is not in exercise, and this is not in exercise except when applied to the impression. *Consequently attention would be nothing but the act of feeling; all sensation would be attention, and all attention sensation;* a meaning which no one ever yet gave to these words. *Attention is the application of the mind to something;* and this application supposes the exercise of an activity concentrated upon its object. Properly speaking, when the mind holds itself entirely passive it is not attentive; and with respect to sensations, it is attentive when by a reflex act *we know* that we feel. Without this cognition there can be no attention, but only sensation more or less active, according to the degree in which it affects our sensibility. If Condillac means to call the more vivid sensation attention, the word is improperly used; for it ordinarily happens that they who feel with the greatest vividness are precisely those who are distinguished for their want of attention. Sensation is the affection of a *passive faculty;* attention is the exercise of an *activity.*"

The essential difference between a sensation of more or less vivacity and the intellectual act of attention is here clearly exhibited, but the distinction between sense and thought is made still more evident, when the Spanish philosopher passes on to comparison and judgment: "Is the *perception of the difference* of the smell of the rose and that of the pink a *sensation?* If we answer that it is not, we infer that the judgment is not the sensation transformed; for it is not even a sensation. If we are told that it is one sensation, we then observe that if it be either that of the rose or that of the pink, it follows that with one of these sensations we shall have comparative perception, which is absurd. If we are answered that it is both together, we must either interpret this expression rigorously, and then we shall have a sensation which will at once be that of the pink and that of the rose, the one remaining distinct from the other, so as to satisfy the conditions of comparison; or we must interpret it so as to mean that the two sensations are united; in which case we gain nothing, for the difficulty will be to show how *co-existence* produces *comparison*, and *judgment*, or the *perception of the difference.* The sensation of the pink is only that of the pink, and that of the rose only that of the rose. The instant you attempt to compare them you suppose in the mind an act by which it perceives the difference; and if you attribute to it anything more than pure sensation you add *a faculty distinct from sensation*, namely, that of comparing sensations, and appreciating their similarities and differences. This comparison, this intellectual force, which calls the two extremes into a common arena without confounding them, discovers the points in which they are alike or unlike each other, and, as it were, comes in and decides between them, is distinct from the sensation; *it is the effect of an activity of a different order*, and its development must depend on sensations as exciting causes, as a condition *sine qua non;* but this is all it has to do with sensations themselves; it *is essentially distinct from them, and cannot be confounded with them without destroying the idea of comparison, and rendering it impossible.* No judgment is possible without the ideas of identity or similarity, and these ideas are not sensations. Sensations are particular facts which never leave their own sphere, nor can be applied from one thing to another. The ideas of similarity and identity have something in common applicable to many facts. . . . Nor can memory, properly so called, of sensations be explained by themselves; and here again Condillac is wrong. The statue may recollect to-day the sensation of the smell of the rose which it received yesterday, and this recollection may exist in two ways: first, by the internal reproduction of the sensation without any external cause, or relation to time past, and consequently without any relation to the prior existence of a similar sensation; and then this recollection is not for the statue a recollection properly so called, but only a sensation more or less vivid; secondly, by an internal reproduction *with relation to the existence of the same or another similar sensation at a preceding time,* in which recollection essentially consists; and here there is something more than sensation—here are the ideas of succession, time, priority, and identity or similarity, all distinct or separable from sensations. Two entirely distinct sensations may be referred to the same time in memory, and then the time will be identical and the sensations distinct. The sensation may exist without any recollection of the time it before existed, or even without any recollection of having ever existed, consequently sensation involves no relation to time."[*]

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[*] *Fundamental Philosophy*, Vol. II. §§ 7—13.

We will now turn to the German philosopher. In one of the best pieces of Psychology which he has written—the chapter on the "Mental Act of Relation,"[10] Lotze remarks: "The view which regards attention as an activity exercised by the soul and having ideas (*i.e.* sense-impressions, images, &c.) for its *objects*, and not a property of which the ideas are *subjects*, was right. The latter notion was the one preferred by Herbart (and by the sensist school). According to him (and them), when we say that we have directed our attention to the idea *b*, what has really happened is merely that *b*, through an increase of its own strength, has raised itself in consciousness above the rest of the ideas. But even were the conception of a variable strength free from difficulty in its application to ideas, the task which we expect attention to perform would still remain inexplicable. What we seek to attain by attention is not an equally increasing intensity of the represented content just as it is, but a growth in its *clearness;* and this rests in all cases on the *perception of relations* which obtains between its individual constituents. Even when attention is directed to a perfectly simple impression, the sole use in exerting it lies in the discovery of relations. . . . If we wish to tune a string exactly, we compare its sound with the sound of another which serves as a pattern, and try to make sure whether the two agree or differ. . . . *On the other hand*, there are moments when we cannot collect ourselves, when we are wholly occupied by *a strong impression*, which yet does not become distinct, *because* the excessive force of the stimulation hinders the exercise of the constructive act of comparison."[11]

In an earlier part of the same chapter he establishes still more clearly the supra-sensuous nature of attention, as manifested in comparison and judgment: "The consciousness of the relations existing between various single sensations (among which we reckon here the sum formed by the sensations when united) is not given simply by the *existence* of these relations considered simply as a fact. So far we have considered only single ideas, and the ways in which they either exist simultaneously in consciousness, or else successively replace one another; but there exists not only in us this variety of ideas and this change of ideas, *but also an idea of this variety and change.* Nor is it merely in thought that we ought to distinguish the apprehension of existing relations which arises from an act of reference and comparison, from the mere sensation of the individual members of the relation; experience shows that *the two are separable in reality*, and justifies us in subordinating the conscious sensation and representation of individual contents to the referring or relating act of representation, and in considering the latter *to be a higher activity,—higher in that definite sense of the word according to which the higher necessarily presupposes the lower, but does not in its own nature necessarily proceed from the lower. Just as the external sense-stimuli serve to excite the soul to produce simple sensations, so the relations which have arisen between the many ideas, whether simultaneous or successive, thus produced, serve the soul as a new internal stimulus stirring it to exercise this new reacting activity.*[12] When two ideas, *a* and *b*, have arisen as the ideas 'red' and 'blue,' they do not mix with one another, disappear, and so form the third idea, *c*, of 'violet.' If they did so we should have a change of simple ideas without the possibility of a comparison between them. This comparison is itself possible only if *one and the same activity* at once holds *a* and *b* together and holds them apart, but yet, in passing from *a* to *b*, is conscious of the change caused in its state by these transitions, and it is in this way that the new idea (concept), γ, arises, the idea of a definite degree of *qualitative* likeness or unlikeness in *a* and *b*.

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[10] *Metaphysics*, Bk. III. [11] § 273.

"Again: if we see at the same time a stronger light, *a*, and a weaker light, *b*, of the same colour, what happens is not that there arises in place of both the idea, *c*, of a light whose strength is the sum of the intensities of the two. If that did arise it would mean that the material to which the comparison has to be directed had disappeared. The comparison is made only because *one and the same activity*, passing between *a* and *b*, is conscious of the alteration in its state sustained in the passage; and it is in this way that the idea γ arises, the idea of a definite quantitative difference. Lastly: given the impressions *a* and *a*, that which arises from them is not a third impression = $2a$; but the activity, passing as before between the still separated impressions, is conscious of having sustained no alteration in the passage: and in this way would arise the new idea γ of *identity*. We are justified in regarding all these different instances of γ as *ideas* (*concepts*) *of a higher or second order*. They are not to be put on a line with the ideas (images) from the comparison of which they arose. The simple idea of red or blue, as it hovers before us, does not suggest to us any activity of our own which has contributed to its existence; but in return for this loss it gives us a directly perceptible content."[13]

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[12] Lotze's doctrine here is in strikingly close affinity to the scholastic teaching on intellectual activity Cf. also *Microcosmus* Bk. II. c. iv. § 1. The italics throughout are our own.

We trust that the vital importance of the doctrine—the spiritual character of intellectual activity—defended in the present chapter, together with the felicitous and forcible manner in which our teaching is supported by these two widely opposed thinkers, will have justified us in introducing such lengthy citations. An energetic opposition has indeed been offered to the sensist school by Reid, Stewart, Hamilton, Ferrier, Martineau,

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[13] Cf. § 268. Later on in the same chapter he observes: "My immediate object is to indicate what happens at least with such clearness that every one may verify its reality in his own internal observation. It is quite true that, *to those who start from the circle of ideas common in physical mechanics*, there must be something strange in the conception of *an activity*, or (it is the same thing) *of an active being*, which not only experiences two states *a* and *b* at the same time without fusing them into a resultant, but which passes from one to the other and acquires the idea of a third state γ produced by this very transition. Still this process is a *fact*; and the reproach of failure in the attempt to imagine how it arises after the analogies of physical mechanics, *falls only upon the mistaken desire of construing the perfectly unique sphere of mental life after a pattern foreign to it*. That desire I hold to be the most mischievous which threatens the progress of Psychology." (§ 269.) There are of course some points, even in this chapter of Lotze, on which we should disagree with him, but with his main contention, the existence in the mind of a supra-sensuous or spiritual activity, we are thoroughly at one.

M'Cosh, and other able writers at home, but there has been usually wanting a clear and positive exposition of the nature of the higher form of mental activity in its elementary stages.[14] The utter insufficiency of the sensationist hypothesis to account for the more elaborate products of the rational faculty has been forcibly urged, yet the essential distinction in kind between the action of sense and the working of intellect in its more rudimentary form has not been sufficiently dwelt upon This, however, appears to us a serious deficiency, for it is at the root error must be destroyed. If mere sense could account for even the most elementary intellectual operations, it would be difficult to show that repetition and association could not explain the later steps.

Readings.—On the essential difference between Intellect and Sense, cf. St. Thomas, *De Anima*, Lib. III. l. 7; *Contra Gentiles*, Lib. II. c. 66; Mivart, *On Truth*, c. xv.; Balmez, *Fundamental Principles*, Bk. IV.; Kleutgen, *Phil. d. Vorzeit*, §§ 33—39. On the difference between the universal concept and the sensuous phantasm, cf. *Logic* (present series), cc. 7, 8; M'Cosh, *Exam. of Mill*, c. xiv. Green's Introduction to Hume's *Treatise on Human Nature* contains a very able examination of Sensism.

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[14] Ferrier was thoroughly alive to the difference which separates sense and intellect, but he rushes into the error of opposing them in a paradoxical manner, and of denying any kind of knowledge to sense. Prop. x. of the *Institutes of Metaphysics* runs: "Mere objects of sense can never be objects of cognition. In other words, whatever has a place in the intellect, whatever is known, must contain an element which has had no place in the senses. Or otherwise expressed, the senses by themselves are not competent to place any knowable or intelligible thing before the mind. They are faculties of *nonsense*, and can present to the mind only the nonsensical and contradictory." The whole chapter, writen in his amusing and nervous style, in spite of a good deal of paradox and error, contains many shrewd and pertinent remarks. The imperfect treatment of intellect by some of the above writers is probably due to their not having undertaken an *ex professo* methodical work on Psychology.

CHAPTER XIV.

CONCEPTION. ORIGIN OF INTELLECTUAL IDEAS. ERRONEOUS THEORIES.

WE have shown in our last chapter that certain mental products are essentially distinct from those of our sensuous faculties and must be due to some higher power of the soul. The question next arises: How are these supra-sensuous results effected? This is the problem of the *Origin of Intellectual Ideas*. The chief solutions advanced are, (1) the hypothesis of Innate Ideas, including the Kantian system of *a priori* mental forms; (2) Empiricism or the sensationalist theory; and (3) the Peripatetic doctrine.* The last system we will leave till our next chapter, the other two we will treat here.

the first exaggerates the contribution of the mind to a maximum
the second reduces it to a minimum

THEORY OF INNATE IDEAS.—A common characteristic of all those philosophers who have adopted in one form or another the hypothesis of innate ideas, is an extremely keen appreciation of the vital difference between sensation and thought. They also usually exaggerate the opposition between soul and body, and many of them are inclined to deny the possibility of any mutual interaction between the spiritual and material substances.

Supra-sensuous mental products, such as the ideas of being, unity, the true, the good, necessary truths, and the like, cannot, these philosophers maintain. have been originated by sensuous observation; they were presupposed in all experience and transcend it. They must consequently have been *innate* or *inborn* in the mind from the beginning, antecedently to all acquired knowledge. Such in a word is the case for this theory.

There are numerous fatal objections to it. In the first place it may be rejected as a gratuitous hypothesis. Unless it be demonstrated that some portion of our knowledge cannot be accounted for by the combined action of sense and intellect, the assumption of such a native endowment is unwarranted. But this demonstration is impossible. Moreover, the genesis of vastly the greater portion of our knowledge can be traced to experience, and there is every reason for supposing that the residual fraction has arisen in the same way. Secondly, by the very nature of the case there can be no evidence of the existence of any ideas antecedent to experience. Thirdly, all our earliest ideas are of objects known by sensible experience, and to these we always turn to illustrate our loftiest and most abstract conceptions.* But these facts are obviously in conflict with the supposition of a supply of ready-made cognitions from the beginning. We may also add that the tendency of physiological science is to make the doctrine of the mutual isolation of body and soul less tenable every succeeding day. In addition to the arguments just mentioned, it may be urged against Kant that his system of innate mental forms inevitably leads to absolute scepticism.

Empiricism.—The Sensational or Empiricist theory of knowledge stands in the completest opposition to the views of Kant, and of the supporters of innate ideas. Starting from the assumption that sensuous and intellectual activity are essentially the same in kind, the aim of the former school is to make it appear that universal and abstract concepts, necessary judgments, self-consciousness, and all our higher spiritual cognitions are merely more complex or refined products of sense. The logical corollary of this theory, though not usually brought prominently into notice, is the repudiation of the spirituality of the soul, or at all events the denial of all rational grounds for belief in this most important doctrine. If all mental operations are of a sensuous organic nature, then evidently there is no reason for asserting that the soul of man is a spiritual principle of an order superior to that of the brute. The method of the empiricist is, on the one hand, to depreciate the value of those peculiar characteristics which mark off our intellectual acts, and, on the other, to exaggerate the capabilities of sense. Universal concepts are either confused with the concrete phantasms of the imagination, or their existence is boldly denied. The necessity of axiomatic judgments is explained as the effect of customary experience; and the notion of Self is analyzed into a cluster of conscious states. All our cognitions, in fact, are merely more or less elaborate products evolved by the automatic action of association out of sense impressions and their reproduced images. As the mind itself is only the resulting outcome, the aggregate of sensuous states, it can of course be endowed with no superior active force capable of uniting, comparing, or in any way working upon the materials of sense. This indeed is the fundamental defect of empiricism. It ignores the active energy of intellect with which the mind is endowed, and consequently it can give no adequate account of those higher intellectual conceptions on which we dwelt in the last chapter.

Scholastic theory, p. [illegible]

HISTORICAL SKETCH OF THEORIES OF GENERAL KNOWLEDGE.

The advantage to the student of Psychology of even a rough idea of the history of speculation on the subject of Intellectual Cognition justifies us, we believe, in giving a compendium of the leading theories on the question, together with a few brief critical remarks on the most important points.

INNATE IDEAS.—*Plato* is the originator of the hypothesis of Innate Ideas. The sensible world is for him no true world at all. It is merely a congeries of transient phenomena, which *changing* from moment to moment never really *are*. The real world, that which alone truly *is* and does not pass away, is disclosed to us in our intellectual ideas. Such universal concepts as *being*, *unity*, *substance*, *the beautiful*, reveal to us, obscurely indeed, but still with truth, the immutable and the necessary. Now these spiritual notions cannot either directly or indirectly be derived from sensuous perception; they are natural endowments of the soul, retained by it from a previous existence. Truth, goodness, humanity, beauty, and the rest, however, do not possess merely a subjective existence, as abstract concepts in the mind. They formally exist *as universals* in the genuinely *real* world of which the present material universe is only a faint imperfect reflexion. In that celestial land the human spirit formerly dwelt, and there contemplated these ideas or abstract essences as they exist in themselves. For some crime, now unknown, it was evicted from its true home and incarcerated in the prison of the body. Although vastly the greater part of its ancient knowledge was obliterated, there yet remained in a dormant condition traces of the mental acts by which the soul in its previous life contemplated the real ideas. These imperfect mental states are the universal ideas of our present experience, and they awake on the occasion of sensuous perceptions. They are not, however, in any way produced by, or elaborated out of these latter. They are merely evoked from the inner resources of the mind on the occurrence of corporeal phenomena, which in a shadowy manner resemble the original types—the Real Universals.

We have here the doctrine of exaggerated or ultra-realism. In this form it implies two distinctive tenets: (*a*) the reality of universals *as such*—*Universalia extra rem vel ante rem;* and (*b*) the existence of innate ideas by which these are revealed. The former is a logical or metaphysical problem, and for a complete discussion of the subject we refer the reader to other volumes of the present series.[1] The second is properly a psychological question. Plato is undoubtedly right in accentuating the vital importance of the intellectual elements of knowledge, but the assumption of a pre-natal existence is arbitrary and untenable, whilst the doctrine of *real* universals is laden with absurdities. The only proofs urged in favour of the hypothesis of innate ideas are the peculiar supra-sensuous character of intellectual representations, and the fact that the answering of children to judicious interrogation seems to show that they are possessed of such ideas before they can have formed them from experience. The first argument, however, has no force against the Aristotelian theory, which accounts for supra-sensuous ideas, as the result of the higher spiritual faculty of the mind apprehending the universal nature of real sensible objects. The second difficulty founded on the "heuristic" method of instruction is also ineffective, for this regulated process of interrogation is either virtually a means of teaching and communicating the idea in question, or the latter is of such a simple character as to be formed in at least a vague manner in our earliest experience.

Descartes (1569—1650). Instead of explaining innate ideas as "reminiscences" of cognitions of a previous life, Christian philosophers conceived them as inscribed by God on the soul at its creation. The earliest important thinker among modern philosophers supporting the hypothesis of innate ideas was Descartes. He makes thought the essence of the soul, and extension the essence of matter.[3] He divides ideas into three classes, *adventitious ideas* gathered by sense-perception, *factitious ideas* constructed by the imagination, and *innate ideas* possessed by the mind from the dawn of its existence. Without these latter science would be impossible. Among them are the ideas of the *infinite*, of *myself*, of *substance*, and, in fact, all universal notions expressive of metaphysical realities. These ideas are in no way caused by external objects, but merely wake up into life on the *occasion* of the sensuous perception of the latter. Yet, they truly represent the essences of such objects, since God has ordained them for that purpose. These innate ideas are at times described as real representations, "entities," effected by God; though later on, under the exigencies of controversy, they were reduced to mere dispositions or tendencies of the mind. The former tenet is, however, more conformable with his general view. Even the "adventitious" ideas are not the result of the immediate action of material objects on the mind. Soul and body are so opposed in Descartes' view that interaction seems impossible, and his theory of sense-perception is therefore confused and inconsistent. At times he conceives the act of apprehension as a mental state excited by God on the *occasion* of the physical impression reaching the brain, whilst elsewhere he seems to consider the perception as an intellectual inference from a subjective effect to an objective cause. The difficulty was frankly faced by Descartes' disciples. Geulincx (1625—1669) formally advocated the doctrine of "occasionalism" or "Divine assistance." He denied the possibility of efficient action between body and mind. Changes in the one are but the "occasions" of the production by God of appropriate changes in the other. Similarly in the case of all other secondary causes the Divine intervention or assistance is the only real efficient agency. *Malebranche* (1638—1715) appealed to a mystical theory of a *Vision en Dieu.* The Omniscient Mind of God contains ideas of all things, and truth becomes known to us only as by participating in the Divine Reason we apprehend these ideas. Thus we see all things in God.[3]

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[1] Cf. *Logic*, c. viii. and the *First Principles of Knowledge*, Pt. II. c iv. A good sketch of Plato's Philosophy is given in Stöckl's *History of Philosophy*, §§ 29, 30.

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[3] Descartes is remarkable not so much for his treatment of the *origin* of knowledge as for his attempted proof of its *validity*. To build philosophy on a secure basis he starts with a process of *methodical* or *simulated doubt*. I can doubt, he says, the veracity of my senses, mathematical axioms, the existence of the external world, &c., &c.; but I cannot doubt that I think, and to think I must exist. *Cogito ergo sum*, is thus the first fact and the last truth in Philosophy. To advance further a criterion or rule of certainty is required, and by studying the one unassailable truth, this criterion is discovered to consist in a peculiar *clearness* of apprehension. I am indubitably certain of my own existence, because I *clearly* perceive that my doubt or thought involves it. Whatever, then, I have a *clear idea* of, is to be considered true. The next step is to guarantee the validity of this criterion. I find within me a *clear idea* of an Infinite Being. Whence is this? (*a*) *Clearly* not from a finite creature; and moreover (*b*) the idea of an Infinite Being involves all possible attributes including existence. Ergo, such a Being really exists. The idea of infinite also *clearly* implies perfection and veracity; but a veracious God cannot have created me for perpetual and necessary deception. When, therefore, I have a *clear idea*, I must be in possession of truth. Scientific certainty is now restored, and the construction of a bridge from the subjective to the objective world effected. I have a *clear idea* of mathematical axioms, of the physical universe as extended &c., &c.

There are several fatal objections to the doctrine of Descartes. (1) The system of Methodical Doubt leads logically to absolute scepticism. We cannot prove the veracity of our faculties: if we start with even fictitious doubt we can never recover certainty of any value. (2) The criterion of "clear" ideas is vague, indefinite, and worthless. (3) His attempted justification involves a vicious circular argument. The existence and veracity of God are proved by my possession of a *clear idea*, and again the *validity* of my clear ideas is itself established by the veracity of God. For a full treatment of Descartes' System, cf. *First Principles*, c. ix.

Leibnitz (1646—1716). Sympathizing with the Cartesian view of the soul in opposition to that of Locke, Leibnitz defended against the latter philosopher the existence of innate ideas. The latter, however, only form a particular feature of his peculiar theory of knowledge. To avoid the continuous series of miracles required by the doctrine of "occasionalism," and to escape the mysticism of the *Vision en Dieu,* Leibnitz invented the ingenious theory of *Pre-established Harmony.* The universe he holds to be composed of an infinite number of *monads.* These monads are simple unextended substances, energetic atoms, endowed with forces analogous to the ideas or emotions of the mind. A *law of continuity* in the form of a continuous gradation in stages of perfection holds universally throughout creation from the lowest and most imperfect to the highest created monad. God is the primitive, uncreated, infinite monad. Spirits and human minds are single monads of high rank. Material substances, including the human body, consist of aggregates of inferior monads. There is no real interaction between monads. The existence of each is made up of a series of immanent changes developed in harmony with those of the rest of the universe of monads. The states or "ideas" of each monad reflect, more or less clearly in proportion to its rank, the condition of all other monads. Each monad is thus a mirror of the universe—a *microcosm* imaging the *macrocosm.* The soul and body of man have been so created and mated by God as to run, like two clocks started together, through parallel series of changes. Since all monads have been originally created with appropriate initial velocities and corresponding rates of development, Leibnitz holds that all the phenomena of perception and volition are adequately accounted for. Such is the theory of Pre-established Harmony.

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[3] This theory of direct intuition of God is called *Ontologism.* It is open to several objections. (1) The most careful examination of our consciousness cannot detect the alleged apprehension of God (2) God's existence is not immediately perceived as self-evident. (3) The doctrine leads to subjective idealism. If we know only the Divine ideas and not the things themselves, we have no proof of the existence of these latter.

The *principle of sufficient reason,* that nothing can happen without a sufficient or determining reason, plays an important part in his scheme. The Divine and the human will alike require a determining ground for every act. The creation of the present out of all possible worlds which hovered eternally before the mind of God, is optimistically explained by its being the absolutely best. Its evolution is the gradual realization of a Divine plan.[4] Descartes' mechanical doctrine of inert matter, Locke's conception of a purely passive recipient mind, and the pantheistic monism of Spinoza in which all existing beings are resolved into mere modes of one infinite substance, are thus replaced by a system in which all reality, whether spiritual or material, is transformed into a hierarchical multiplicity of living forces. To Locke's aphorism, *Nil est in intellectu quod non fuerit prius in sensu*, Leibnitz replied, *Nisi intellectus ipse*, defending the inherent activity of the mind, and ascribing to it an original fund of native endowments. Intellectual ideas and fundamental principles must be innate. for they could not have been generated by sensuous experience. We find them within us as soon as we attain to perfect consciousness; and they have the character of *universality* and *necessity*, while sense discloses only the particular and the contingent. We possess the ideas of God, of our own *Ego*, and, consequently, of duration and of change, none of which are in any way derivable from experience. Still, like Descartes, Leibnitz at times tones down the theory of innate ideas until it almost vanishes. The ideas do not exist as actual cognitions from the beginning; neither quite as pure potencies. They are best described, *comme des inclinations, des dispositions, des habitudes, ou des virtualités naturelles, et non pas comme des actions.* They exist merely as *unconscious perceptions* until they are evoked into the stage of *apperception;* that is, until they are formally realized in consciousness. However, although there appears to be placed a distinction between the origin of intellectual ideas and the acts of sensuous apprehension, the theory of Pre-established Harmony necessarily makes them both equally the result of a purely subjective evolution of the native possessions of the mind.

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[4] Hence Leibnitz is commonly spoken of as an *Idealist.* The ambiguity of this word should be carefully borne in mind by the student. *Idealism* or *rationalistic idealism* in one usage is equivalent to *Teleologism,* and denotes the view that the world is governed by an *idea* or plan. Aristotle and theistic philosophers are *idealists* in this sense, though they may believe in the existence of a real material world. A special form of this teleological idealism is *optimism,* which maintains the *ideal perfection* of the world. *Idealism* in another signification, or *Phenomenal Idealism,* as we have explained in a previous chapter, means the theory which denies all *material reality.* We can only know *ideas,* viz , sensations, phenomena, &c. Hume and Dr. Bain are idealists in this sense. *Idealism* in the first signification is opposed to a purely *mechanical theory* of the genesis and conservation of the world, in the last to *realism,* or the assumption of the existence of a *real* extra-mental world. The term *Realism* is also ambiguous. It is employed (1) in the sense just mentioned to signify the doctrine of a real independent world, and (2) as opposed to *Nominalism* and *Conceptualism* to denote the theories (exaggerated and moderate realism) which maintain the objective validity of general notions, the extra-mental reality of something corresponding to *Universal* ideas Cf. *First Principles,* Pt. II cc. ii. iv.

The system of Leibnitz as a whole is a beautiful and ingenious creation of a great intellect, but fanciful and incredible in the highest degree. As regards the special question of perception, the hypothesis of a universe of isolated monads working out independent lines in pre-established harmony is gratuitous, incapable of proof, and impossible to reconcile with the veracity of God or the Freedom of the Will. The sole ground of the creation of this world is, Leibnitz teaches, its superior rationality, its absolute consistency, and inner perfection. Yet when examined, it turns out to be a gigantic sham. "While none of its members condition each other everything goes on as if they did."[5] With all the semblance of real unity and interaction, the parts possess no more genuine connexion than the incidents of an unreal dream. As regards the wavering exposition of the nature of innate ideas by both Descartes and Leibnitz,[6] it may be observed, that, if all which is claimed to be innate is the capability of forming ideas out of materials presented by sense, then the doctrine is correct: but if instead it is held to be purely out of the mind's own resources, apart from any real co-operation of external objects, that our ideas are evolved, then all the objections to the innate theory already indicated stand. There can, moreover, be advanced no reason, which does not involve flagrant *petitio principii*, for asserting that innate ideas truly represent the objective world; and the logical outcome is therefore subjective idealism. For Leibnitz, especially, it is peculiarly indefensible to assume the real existence of the material world which, in his view, effects no real change in our mental states.

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[5] Cf. Lotze, *Metaph*, § 79. This modern thinker, in several respects closely related to Leibnitz, criticizes that philosopher in an able manner

Rosmini (1797—1855) reduced the stock of innate cognitions to the single idea of *indeterminate being*, which he considers to be a mental form, a condition of knowledge, and the light of reason. This idea is involved in every other idea and judgment, and so must precede them all. By the application of this innate form to our sensations sensuous apprehension is converted into the intellectual perception of objective existence. Against this single idea, all the old objections to the larger hypothesis still hold. Moreover, the alleged combination of the intellectual *form* with the sensation presents to us a very obscure and dubious conception, and affords an extremely unsatisfactory account of the objective reality of our knowledge of being. The inference from the universality of the idea of being in our cognitions to its innate origin is unwarrantable. Every perception contains this idea, because every external object apprehended involves this attribute. Finally, if this idea which is predicated of all real objects be, as Rosmini in his later writings implies, an apprehension of the Infinite Being, the doctrine leads towards Pantheism.[7]

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[6] Cf. Liberatore *On Universals* (Trans.), pp. 78, 96—102; also Stöckl, *Geschichte der Neueren Philosophie*, Vol. I. § 78. The articles on Descartes, Leibnitz, and Kant, in this excellent history, are especially admirable.

[7] Besides the arguments in favour of innate ideas indicated in the brief accounts given of the above writers, it has been urged: (1) that thought is essential to the human mind, and so must have been ever present; (2) that at all events the desire of happiness, which involves many ideas, is innate; (3) that axioms or first principles, intellectual and moral, are known by all from an early age, and must therefore be implanted from the beginning. It may be replied: (1) that the *faculty* of thought is essential to the soul, and

INNATE A PRIORI MENTAL FORMS.—Excited by the thorough-going scepticism of Hume, which destroyed the possibility of knowledge, Kant (1724—1804) attempted to elaborate a theory of cognition which, combining the elements of truth possessed by Locke, Descartes, and Leibnitz, would afford a solid basis for science. The chaotic and conflicting systems of speculation with which his descendants have deluged Germany during the past ninety years are very significant evidence as to the amount of success attending Kant's effort.

His chief works are the *Critique of the Pure Reason*, and the *Critique of the Practical Reason*. The former treatise comprises an examination into the origin, extent, and limits of knowledge. The first step in Philosophy must be, *criticism* as opposed to *dogmatism* on the one side, and to *scepticism* on the other. By *criticism* Kant means an attempted scrutiny into the range and validity of our knowledge. *Dogmatism*, he maintains, assumes while *scepticism* rejects, alike unwarrantably, the veracity of our faculties. Kant's *criticism* results in the denial of real knowledge of everything transcending experience. There is a purely subjective or mental co-efficient in all cognition which destroys its validity. This is especially illustrated in *synthetic a priori* judgments. Judgments are either *synthetic* or *analytic*. The latter, always necessary in character, are formed by mere analysis of the subject, *e.g.*, the whole is greater than a part. Synthetic judgments may be either *a posteriori* and contingent, *e.g.*, England is a naval power; or *a priori* and necessary, *e.g.*, Nothing can begin to exist without a cause, Two straight lines cannot inclose a space. How are these *synthetic a priori* judgments possible? Whence is their peculiar necessity and their universality? This is the problem attacked by the Kantian philosophy. The judgments are not, it is asserted, derived from mere experience, for mere empirical generalizations can never attain this absolute kind of certainty. Yet they are not purely analytical or verbal propositions. *Synthetic a priori* judgments are effected, Kant answers, by

possibly the exercise of its vegetative or sentient functions may be continuous, but there is absolutely no evidence that *actual thought* is essential; (2) that the aptitude or disposition to seek happiness when occasions are presented to us, is indeed innate; but this is quite different from innate actual desires or cognitions of particular forms of happiness; (3) that such universal cognitions are also merely the result of our common faculties. Given certain experiences, the intellect of man is at an early age capable of discovering by observation, comparison, and reflexion, the simplest and most obvious truths the action of certain mental forms which mould or condition all our knowledge.[8] Human cognition is an amalgam of two elements, a product of two co-efficients—the form (*die Form*) due to the constitution of the mind, and the matter (*der Stoff*) due to the action of the external object. We can only know the phenomenon—the mental state resulting from both factors. To the *noumenon*, *the Ding-an-sich*, the thing in itself, we can never penetrate. It is only revealed to us as shaped by the *a priori form* of the mind.

In *Perception* the *a priori* element is exhibited, as we have described at length in chapter vi. in the sensuous intuitions of *space* and *time*, which mould our external and internal sensibility.[9] The acts of the *Understanding* are conditioned by another class of twelve purely mental forms called *categories*. Things in themselves have not unity, plurality, substantiality, causality, and the rest. These categories are true not of the *noumenon*, but only of the phenomenal object—that which appears in consciousness. We are subjectively necessitated to think of change as under the law of causation, of accident as inhering in substance, and so on; but we have no ground for supposing such to be really the case with the *Ding-an-sich*. Finally, the activity of the *Reason* is similarly conditioned by three *Ideas*, of the *Ego* or thinking subject, of the universe as a whole, and of God; but these latter forms have for us also only a subjective value, and cannot be affirmed with certainty of the thing-in-itself. Consequently, we can only know *phenomena*—things when shaped and coloured by these mental forms. The dubious character of these *a priori* factors is further confirmed by their involving certain alleged contradictions called "antinomies" or "paralogisms." The identity of a substance amid change, the notions of free-will, causation, and the like, all imply contradictions. The outcome of the criticism of the Pure Reason, then, is the repudiation of knowledge regarding whatever transcends experience.

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[8] Kant thus agrees with Descartes and Leibnitz in maintaining that universal and necessary axioms cannot be gathered from external experience, but must have their source in the original furniture of the mind itself. Whilst, however, the latter philosophers ascribe to these cognitions, in spite of their subjective origin, real or ontological validity, Kant more logically renounces this tenet. Previous to Kant *a priori* knowledge meant *knowledge of effects from their causes*. He has arbitrarily changed the meaning of the phrase to mean knowledge the necessity of which ne asserted to be due solely to the mind, and so to be independent of experience. Cf Ueberweg's *Hist. of Phil.* Vol. II. pp 161, 162.

[9] The *a priori* form of *space* generates the necessity and universality of all geometrical judgments, the form of *time* does the same for arithmetical propositions—such at least is Kant's view as interpreted by Hamilton, Mansel, Kuno Fischer, and others. Mr. Mahaffy, *Critical Philosophy*, p. 64, contends that both branches of mathematics were in Kant's opinion based on the intuition of space.

The *Critique of the Practical Reason* contains Kant's moral system—stoicism of a rigorous type. He there seeks to restore in the form of *belief* what he has previously demolished as *rational cognition*. Though the existence of the Deity, the immortality of the soul, and the freedom of the will are incapable of proof, if not also replete with contradictions, yet their admission is exacted by the needs of our moral nature.

(1) It has been urged with great force against Kant's system as a whole that the central problem of the *Critique*—the question whether our faculties can attain real truth—is based on an erroneous view of the proper aim and method of Philosophy. The dogmatical standpoint is the only one which can be consistently maintained. We must from the beginning, under penalty of absolute scepticism and intellectual suicide, assume the capacity of the mind to attain real truth. Every attempt to demonstrate the veracity or the mendacity of our faculties must involve either a vicious circle or a contradiction. Thought, as Hegel argued, can only be scrutinized by thought, and to require a criticism of thought antecedently to the acceptance of its validity is equivalent to refusing to enter the water till we are able to swim.[10]

(2) Moreover, the plausible intermediate position between *dogmatism* and *scepticism* assumed by Kant is utterly untenable. Like every other system of mitigated or partial scepticism, it logically leads to the admittedly absurd position of absolute scepticism. If such irresistible convictions as the reality of space, time, causality, unity, plurality, personal identity, and the rest, are to be deemed merely subjective illusory creations of the mind, then, not only are the instinctive beliefs and yearnings on which Kant would rest the existence of the Deity and another life worthless, but the long elaborate chains of not too lucid reasoning and argument which constitute Kant's own writings will be reduced to a decidedly fragile condition. That this objection possesses real force the subsequent history of Philosophy in

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[10] For a general justification of the doctrine of Philosophical Method asserted here, cf. *First Principles of Knowledge*, cc. vi. vii. Lotze directs some very just criticism against the Kantian method. Cf. *Metaphysics*, §§ 8, 9.

Germany has only too clearly established. Even in Kant's lifetime Fichte logically deduced from his master's principles consequences from which the author of the Critical Philosophy shrank as false and pernicious. If we are inevitably deceived, argued the disciple, as regards the reality of space, causality, and the rest, if the *formal* element is a purely subjective creation, why may not the *matter* of knowledge and consequently the *noumenon* itself be also a mental fiction? By this uncompromising thinker nothing but the *Ego* is admitted: all else are but creations of the mind. Hegel, the defender of the identity of contradictions, and Schelling, the author of the unity of subject and object, are, like Fichte, the legitimate offspring of the Critical Philosophy.

(3) The proof of the subjectivity of the *categories* and *ideas* rests largely on the analogy which holds between them and the *forms* of sensibility, Space and Time, the subjective nature of which is supposed to be already established. For a refutation of this latter point we refer the reader back to pp. 110—114.

(4) Kant's various illustrations of *synthetic a priori* judgments are reducible either to contingent *a posteriori* generalizations or analytical truths. For a brief treatment of this point we refer the reader to the volume of this series on *Logic*, pp. 61—67. An elaborate justification of our assertion will be found in Balmez, Bk. I. c. xxix., and Harper's *Metaphysics of the School*, Bk. IV. c. v.

(5) Kant's assumption of the existence of an external *noumenon* in any shape, is inconsistent with the reduction of the principle of causality to an *a priori* form. We are justified in believing in an external reality as the *cause* of our sensations only if the principle of causality is *really valid*, applicable to *noumena*, and not a purely subjective illusion.

(6) Finally, as a barrier against the scepticism of Hume, and as a solid basis for science, the *Critical Philosophy* is a complete failure. Hume analyzes all knowledge into transitory mental states, and necessary truths into irresistible subjective beliefs generated by customary associations. The substitution by the German philosopher of *necessary* but still *purely subjective* laws or forms of thought for such beliefs, does not really touch the sceptic. Inasmuch as these laws inhere in all human minds and condition all experience, Kant calls them at times *objective* and *universal* as opposed to individual variability. but still they are merely mental. They might, it is true, explain the harmony of the activity of human minds, were these isolated from the physical universe and occupied solely in deducing mathematical theorems from abstract axioms. But Astronomy, Geology, Physics, Chemistry,

Physiology, assume and verify the reality of laws other than the creations of the mind. They assert unmistakably that there are *real powers* acting upon us and upon each other in space and time, according to laws which we know: they show us that different minds agree in their representations of such modes of action: and they demonstrate that these regular modes of action continue unchanged in the absence of all human minds. Science, in fact, assumes, and the verification of its predictions justifies the assumption, that the laws of cognition mirror the laws of real existence. Kant denies this, and his substitution of innate and necessary but still purely subjective forms of knowledge for the subjective beliefs of the Scotch sceptic, does not afford a whit more solid ground for science.[11]

Empiricism.—In complete opposition to Kant and the defenders of innate ideas stands the Empiricist school.

John Locke (1632—1704), in his *Essay on the Human Understanding* (1690), previous to Kant and Hume, sought "to inquire into the origin, certainty, and extent of knowledge, and the grounds of belief, opinion, and assent." This work is the fountain-head of modern sensism, empiricism, materialism, and phenomenal idealism.[12] Locke starts with the rejection of innate ideas or innate principles in any form. The mind is originally a *tabula rasa*, a clean slate on which nothing is written. The sources of all our knowledge are external sense-perception and reflexion or internal perception. *Nil est in intellectu quod non fuerit prius in sensu.* Knowledge consists in the perception of agreement or difference between our ideas. The ultimate elements of knowledge are ideas received through the senses. These aggregated in various ways form *compound* or *complex* ideas, which are divided into three classes, *modes*, *substances*, and *relations*. Ideas of *primary qualities* of bodies,—extension, solidity, figure, &c., are like their objective correlates, but ideas of *secondary qualities*, taste, colour, &c., are not. By reflexion or internal sensibility we know our volitions and feelings. By internal and external sense combined, we form ideas of power, unity, and the like. *Substance*, the self-subsisting substratum which we imagine to be the support of the qualities of bodies, is a mental fiction. It cannot be apprehended by internal or external sense; but, as we are unable to imagine that the ideas we perceive by our senses inhere in nothing, we suppose the existence of a substratum which binds them together.

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[11] *Readings on Kant,* Kleutgen, op. cit. §§ 337—368; Balmez, op. cit. Bk. I. c. 29, Bk. III. cc. 16, 17, Bk. VII. cc. 12—14, Martineau, *A Study of Religion,* Vol. I. pp 70—80; Veitch, *Hamilton,* pp. 147—154, 242—246; Ueberweg, *Logic,* §§ 36—44; *History of Phil.* Vol. II. pp. 159, seq., especially the notes; Père Chabin's *Cours de Philosophie,* pp 591—605; Dr Stöckl, *Geschichte,* Vol. II., and Dr. Gutberlet, *Logik und Erkenntnisstheorie,* pp. 185—204.

[12] The student is sometimes confused by the assertion that a particular tenet leads both to *idealism* and to *materialism.* The explanation is that the one is what may be termed an *epistemological,* the other a *psychological* deduction. In other words, the former refers to the nature and validity of *knowledge,* the latter to the constitution of the *soul.* Thus, as we show elsewhere, the sensist philosopher in expounding his theory of cognition must dissolve the material world into a series of conscious ideas, and in dealing with Rational Psychology, he must reduce the mind, that is, this series of conscious states, to an aspect or function of currents of nerve matter.

Locke's influence in Philosophy has been great mainly in two directions. On the one hand he gave a powerful impulse to Empirical Psychology, and on the other his defective analysis of our mental endowments resulted in a sensationalism which rapidly developed into materialism and scepticism. The stimulus given to the study of mental phenomena should within its own sphere have been a real gain to Philosophy, but occurring unfortunately at an epoch when Metaphysics had fallen into discredit, the use and value of this method in the treatment of metaphysical questions proper became absurdly over-estimated. Accordingly, most modern thinkers from Berkeley, Hume, and Kant, to Mill and Mr. Spencer, have been led to devote a prodigious amount of labour to the obscure question of the origin of knowledge, and then, on the strength of some very dubious solutions therein adopted, to determine authoritatively the validity or invalidity of all our cognitions and beliefs.

As regards particular tenets of Locke we have only space to remark: (1) that his conception of the mind as a passive recipient tablet, and his non-recognition of its supra-sensuous activity, are fatal blemishes to his psychology; (2) that as a consequence he can give no adequate account of all our most important notions, such as those of God, self, substance, and the various intellectual operations insisted on in a previous chapter; (3) that his view of knowledge as the perception of agreement or disagreement between ideas and not things, and his doctrine of mediate perception leads inevitably to subjective idealism. If we can only know our mental states, then we have no knowledge of the existence of a material world beyond these states. (4) His use of the important word *idea* is fatally ambiguous throughout his whole work, and he similarly confounds *mental* with merely *intra-organic* phenomena. The vital deficiencies in his doctrine of sense-perception and in his conception of intellect were evinced in the next generation by the Idealistic and Sceptical deductions of Berkeley and Hume on the one hand, and by the Sensualism of Condillac, Helvetius, and the French Materialists on the other.[13]

As Berkeley and Hume, the immediate descendants of Locke, were more celebrated for their denial of an external world than for their views on the nature of intellectual knowledge, we have sketched their systems when dealing with sense-perception. Both ignore the difference between sense and intellect; but the most thoroughgoing disciple of Locke in this direction was the French philosopher Condillac. He omits Locke's second source of experience, *reflexion*, altogether, and endeavours to build up the edifice of knowledge by external sense alone. Hartley, in this country, similarly conceived the mind as a passive recipient something, in which by association our sensations and phantasms combine, coalesce, and become refined into spiritual cognitions. It will, however, be most useful to pass on to the latest representatives of the Sensist school, and we will take Dr. Bain and Mr. Sully as its leading present advocates. Both these writers, especially the latter, shrink from the crude exposition of the doctrine propounded by Condillac, Hartley, and the elder Mill. Indeed, portions of Mr. Sully's description of the process of thinking seem to us accurate enough; but then this improvement, as we have already observed, is gained at the cost of temporary abandonment of the fundamental tenet of the school—that all mental life is reducible to the single type of sensuous activity. Perhaps a few citations from both Mr. Bain and Mr. Sully may best enable us to point out the defectiveness of their teaching. We will start with Dr. Bain's account of the operations of Conception and Judgment:

"We *feel identity* among stars in spite of their variety, the things thus identified make a class, and the operation is called classifying." "We are able to *attend*[14] *to the points of*

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[13] The best examination of Locke's system in English is, perhaps, that contained in Green's Introduction to Hume's *Treatise on Human Nature.* Cf. also Schwegler's *History of Philosophy*, pp. 177—182, and Stöckl's *Geschichte der neueren Philosophie*, §§ 32—45.

[14] True, we are capable of attention, but this implies more than sensibility. Again, what are "points of agreement"? Clearly not a concrete quality, like a taste or smell, capable of stimulating a sensuous faculty. "Agreement" is a *relation between perceived things*, and, consequently, its apprehension requires the exercise of an

agreement of resembling things and to neglect the points of difference, as when we think of the roundness of round bodies . . . . this is named the power of abstraction." Nevertheless "abstraction does not consist in the *mental separation* of one property of a thing from the other properties, as in thinking of the roundness of the moon apart from its luminosity . . . . *such a separation is impracticable.*" We merely "imagine a thing in company with others having the attribute in question, and affirm nothing of the one concrete thing which is not true of all the others." We sometimes seem to approach to an abstract idea, but it is really impossible. Even in *geometry* the concrete lines and figures are a necessity. "Length is the name *for one or more things* agreeing in the property so called, and the property is nothing but this agreement." "*The only generality possessing separate existence is the Name.* General ideas separated from particulars have no counterpart in Reality (as implied in Realism), and no Mental existence (as affirmed in Conceptualism). . . . Neither can we have a mental Conception of any property abstracted from all others; we cannot conceive a circle except as of some colour and some size; we cannot conceive justice except by thinking of just actions." Logically enough, then, following out the principles of sensism, he holds also that "the existence of a supposed external and independent material world is the crowning instance of the abstraction converted into the separate entity."[15]

Such is Dr. Bain's psychology of universal concepts, and we will now make a few brief comments. The expressions "feeling" or "sense of difference or identity" are inaccurate if used of the comparative act in the same meaning as when applied to the consciousness of the original sensations. The perception of agreement or difference is an intellectual cognition. If "we are able to attend to the points of agreement of resembling things, and to neglect the points of difference," then it is not true that "we cannot make a mental separation of one property of a thing from other properties." Attention to one particular aspect of objects and neglect of the rest constitutes precisely the mental separation of the former property; and in this the essence of abstraction consists. It is, moreover, on the exercise of this intellectual faculty that the science of geometry, and, in fact, all general knowledge depends. We

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additional activity superior to that engaged in the two or more existing impressions. This activity must hold the two separate impressions together and discern the relation of likeness or unlikeness between them.

[15] *Mental Science*, Bk II. c. v

attend to those features of our figure which are common to all the class, and we omit the rest. Our demonstration proceeds solely from the attribute or group of attributes which are contained in the concept of the species of figure with which we deal; and if we allow any accidental qualities to intrude, our proof may become at once vitiated. It is, of course, indisputable that we cannot *picture by the imagination* length separated from the line, or surface from the plane; but this does not prevent us from *thinking* the length whilst we ignore the other qualities. When I prove a thesis in geometry regarding the length of some line, I fix my attention solely on the length of the imperfect line before me. although of course my senses must apprehend it as possessing breadth. Now, this act of attention is a *thought*, a *cognition* presenting to me that something which forms the subject of my elaborate demonstration. *This thought is a universal idea;* and the denial either of its abstract character or of its real objective foundation annihilates the science of Geometry.

Even such a thoroughgoing sensationalist as G. H. Lewes fully realizes this. He completely admits that the view of Mill and Dr. Bain would render mathematical science indistinguishable from a series of useless propositions deduced from a collection of artificial definitions and arbitrary postulates. As his remarks on the point are fairly accurate, and afford an effective refutation of his school, we may cite them here "To the geometer the circle is not a round figure visible by his eye, but a figure visible by his mind in which all the radii from the centre are *absolutely* equal; it is not this particular circle, it is the *ideal* circle."[16] Again: "The objects of mathematical study are *reals* in the same degree as that in which the objects of any other science are reals. Although they are *abstractions*, we must not suppose them to be imaginary, if by imaginary be meant *unreal*, *not objective. They are intelligibles of sensibles; abstractions which have their concretes in real objects.* The line and the surface exist, and have real properties, just as the planet, the crystal, and the animal exist and have real properties. It is often said, 'The point without length or breadth, the line without breadth, and the surface without thickness are imaginary; they are fictions, no such things exist in reality.' This is true, but misleading. These things are fictions, *but they have a real existence, though not in the insulation of ideal form,* for no idea exists out of the mind. These abstractions are the limits of concretes. Every time we look on a pool of water we see a surface without thickness, every time we look on a party-coloured surface we see a line without breadth as the limit of each colour. Both surface and line as mathematically defined are unimaginable, for we cannot form *images* of them, cannot picture them detached; *but that which is unpicturable may be conceivable, and the abstraction which is impossible to perception and imagination is easy to conception.* It is thus that *sensibles* are raised to *intelligibles*, and the constructions of science—conceptions—take the place of perceptions. But the hold on reality is not loosened by this process. When we consider solely the direction of a line we are dealing with a fact of Nature, just as we are dealing with a fact of Nature when we perform the abstraction of considering the movement of a body irrespective of any other relations. . . . Not only is it misleading to call the objects of Mathematics imaginary, it is also incorrect to call them *generalizations.* They are abstractions of intuitions. Any particular line we draw has breadth, any particular circle is imperfect; consequently generalized lines and circles (*scil.* by imagination =generic images) must have breadth and imperfection. Whereas the line or circle which we intuit mathematically is an abstraction from which breadth or imperfection has dropped, and the figures we intuit are these figures under the form of the limit."[17]

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[16] *Problems of Life and Mind,* Vol. I. p. 344.

So much for Dr. Bain's denial of abstract conceptions and universal relations. His definition of length as "the name of one or more *things* agreeing in this property," illustrates well the violence that must be done to common language and common thought in order to adapt them to the needs of the Sensist Psychology. *Length* is not the name of *things*—the fishing-rod, the piece of string, and the River Thames—any more than *motion* is the name of the steam-engine, the swallow, and the perambulator. It is simply the name of a common property which the mind can consider and reason about "irrespective of any other relations." It is quite true that we cannot form a sensuous image or phantasm of a circle except of some particular colour, size, &c., and it is also true that the intellect cannot elicit a universal idea without the presence of a concrete image; but given this latter, we can contemplate in *thought* the specific or universal features abstracting from those which are individual.

The comparative or judicial activity of intellect Dr. Bain resolves into the *Law of Relativity.* "The Principle of Relativity, or the necessity of change in order to our being conscious, is the groundwork of Thought, Intellect, Knowledge, as well as of Feeling. . . . We know heat only in the transition from cold and *vice versâ*. . . . Relativity in this sense applied to thought coincides with the power of discrimination . . . the sense or feeling of difference which is one of the constituents of intelligence. . . . We do not know any one thing of itself, but only the difference between it and another thing; the present sensation of heat is, in fact, a difference from the preceding cold." "The really fundamental separation of the Intellect is into three *facts* called (1) Discrimination, the sense, feeling, or consciousness of difference. (2) Similarity, the feeling or consciousness of agreement, and (3) Retentiveness, or the power of memory or acquisition. These three functions, however, much as they are mingled in our mental operations are yet totally distinct properties, and each the groundwork of a distinct structure. . . . They are the Intellect, the whole Intellect, and nothing but the Intellect."

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[17] *Id.* 420, 421.

Against Mr. Bain's statement of the alleged Law of Relativity numerous serious difficulties have been urged:[18] this question, however, does not seem to us of very grave philosophical importance. But his attempted reduction of Intellect to a mere phase of that law lies open to the fatal objection that he confounds in the crudest manner two essentially distinct things—capacity for discriminable feelings, and the power of discriminating between them. His language about the so-called "facts" of discrimination ignores the radical diversity between the mere occurrence of unlike feelings and the comparative act of the higher faculty by which that unlikeness is cognized. Transition from one feeling to the other, change from one state of consciousness to another, is very different from the intellectual act of attention by which we may and do at times recognize that transition, and compare those states. Among low stages of animal life we frequently find the keenest susceptibility to different sensations. But the intellectual perception of them *as different* is wanting. The same objection applies to his treatment of the "fact" of agreement. As regards the third "fact" or "function" he is even less happy. "Retentiveness" strictly understood means simply the persistence in the mind or body of a disposition towards the re-excitation of a state which has once occurred. Now this capability of conservation or resuscitation is not a specially intellectual or cognitive property at all. If, however, it is to be interpreted more largely as involving *recognition* and equivalent to "memory," then it is clearly not simple or ultimate in Dr. Bain's sense, but is in part made up of the "fact" or cognition of agreement.

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[18] Mr. J. Ward has forcibly argued against the supposed law: (1) That the axiom, *Idem semper sentire et non sentire ad idem recidunt*, though a truism in reference to the totality of mental life, or to consciousness as a whole, is false as regards many individual impressions. (2) That the suggested illustrations, *e.g.* insensibility to continuous motion, temperature, pressure of the air, &c., are cases of *physiological*, not *psychical* habituation, and so are not constant *mental* impressions at all. (3) That "constant impressions" in the form of "fixed ideas" are the very reverse of a "blank." (4) That if every feeling were "two-fold" or a "transition," a man surrounded by a blue sky and ocean, or passing from a neutral to a positive state of consciousness, must be unaware of any impression at all, which is not the fact. (5) There is, too, the old difficulty of Buridan's ass (6) Moreover differences, which are themselves real presentations or objects of apprehension, are cognized, *e.g.* degrees of variation in shade, pitch, pressure, &c., and therefore presuppose the perception of the absolute terms. Mr. Ward also rightly traces Dr Bain's confusion on this subject to his ignoring the difference between the *mere successive or simultaneous occurrence* of two related feelings, and the *intellectual perception of their relation*. ("Psychology," *Encycl Brit* 9th Edit.) A still more fundamental objection in our view is that the primitive act both of sense and intellect is not *comparative* at all, but simply *apprehensive*. The first cognition of the intellect is the *being* of the object, "that is a being" or "something is." But of this more hereafter.

Mr. Sully, whose *Outlines of Psychology* constitutes at present probably the most popular work of the Sensist school, seems to have clearly recognized the inadequacy of the account of our knowledge given by previous representatives. In chapters ix. x. of that work he analyzes and describes the process of thinking. Some of his remarks there appear to us very accurate; but usually when this is the case they are completely inconsistent with his Sensationalist assumption that "all mental activity is of one and the same kind throughout its *manifold phases*." (p. 26.)[19] We can only cite a few typical phrases which will nevertheless sufficiently justify our observations: "All thinking is representation like imagination, but it is of a different kind." "Thinking deals with abstract qualities of things—that is, aspects common to them and many other things, *e.g.* the possession of life."

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[19] The phrase "manifold phases" is happily vague; but in substance Mr. Sully adopts the sensist principle that at bottom *all mental life is essentially of one kind*—sensuous consciousness How the admission of a power of "active self-direction" (p 73) and of those various activities involved in comparison of impressions, cognition of relations, and reflexion on states of self (cc. ix. x) is to be reconciled with this view, he does not attempt to explain For our own part, we cannot easily imagine a more fundamental difference in kind than that between the sensibility exhibited in passive sensations awakened by the reception of concrete impressions, and the active and reflexive energies exerted in reflexive attention to, and comparison of, these impressions. If there is a

These statements are true, but directly opposed to Nominalism, involved in Sensism, and frankly accepted by Mr. Bain. If "thinking is representation like imagination, but of a *different kind*," and if "abstract qualities of things, that is, aspects *common* to them and many other things," can be thus represented in thought, then evidently the Sensist tenet that there can be really no general notions or concepts, and that the only thing which is universal is the word or name, is abandoned. Again: thinking, "like the simpler forms of cognition, consists in discrimination and assimilation, in detecting differences and agreements," but "it is of a *higher kind* involving much more activity of mind. . . . All thinking involves comparison. . . . By an act of comparison is meant the voluntary direction of the attention to two or more objects at the same moment, or in immediate succession, with a view to discover differences or agreements." This power he holds to be beyond that of even intelligent brutes. Here, again, the description is correct, but utterly incompatible with the empirical conception of the mind as a mere collection of impressions.

In treating of the nature and origin of the universal idea, Mr. Sully unfortunately at times lapses back into the old exploded method of confounding the intellectual concept with the phantasm of the imagination, though he seems occasionally to have grasped the distinction between them. He defines the concept as "the representation in our minds answering to a general name, such as soldier, man, animal." But, "what is in the mind is a kind of composite image formed by the fusion or coalescence of many images of single objects, in which individual differences are blurred, and only the common

mind in the sense of a *real* unity, an *abiding energy*, endowed with intellectual or spiritual as well as sensuous powers, then it is conceivable that such a mind should be capable of reacting through its superior faculty, and of attending to, comparing, and reflecting upon the sensuous impressions which it has received. But if all mental life is essentially one in kind, and the mind itself but the series of sensuous states, then, where this active self-direction and this reflexive comparing force is to come from, we confess ourselves unable to conceive.

features stand out prominently . . . this may be called a typical or *generic* image." Now, this so-called "generic image" is as distinct from the general concept proper as is the individual image. It is merely a confused phantasm, or rather a series of fleeting phantasms in which some of the individualizing notes are dimmed. The word *man* or *right-angled-triangle* calls up in the imagination a succession of obscure unsteady representations which reproduce the outlines and common parts of a number of objects pertaining to the class; but the universal idea or concept is something quite different. It is stable; it may be grasped clearly, while the generic image is confused; it is truly universal, it really applies to all possible members of the class. When the mathematician demonstrates that "the sum of the squares of the sides of a right-angled triangle are equal to the square of the hypothenuse," or the moral philosopher, that "man is a free moral being responsible for his actions," what is signified by the words "man" and "right angled triangle" is neither the oral word nor the congeries of phantasms styled the "generic image," nor yet some particular individual, but the general notion, the intellectual concept, or rather the essential nature realized in the various individuals of the species, and apprehended in the abstract thought.[20]

THE ORIGIN OF Axioms & NECESSARY TRUTHS: ASSOCIATIONIST THEORY.—Besides universal concepts, *necessary* truths and especially those which have been called *synthetic a priori* judgments have been advanced in proof of the existence of a supra-sensuous faculty. Examples of these are the axioms of mathematics: "Two things which are equal to a third are (necessarily) equal to each other;" "Equals added to equals give equals;" "Two straight lines cannot inclose a space;" the principle of causality: "Nothing can begin to exist without a cause;" and also self-evident ethical maxims: "Right ought to be done;" "Ingratitude is wrong," and so on. (These judgments, we maintain, affirm necessary and universal truths. They *must* hold *always* and *everywhere*, even in the most distant parts of the universe. God cannot infringe them.) The peculiar *necessary* character of these propositions Kant sought to explain, as we have seen, by the hypotheses of subjective forms or laws inherent in the constitution of the mind. *Empiricism* endeavours to account for this necessity by mental association. The axioms are, it is asserted, mere generalizations from continuous experience. They have been reached by observation and comparison of the empirical facts around us, and they may be legitimately extended by inference throughout the world of our experience, but beyond this we cannot assert that they must hold. In distant stars 2+3 may equal 4.

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[20] The inadequacy of the generalized image to furnish a basis for science is clearly perceived by Lewes in the passage cited some pages back. The reader will find a detailed treatment of the "common phantasm" or "generic image" in the volume on *Logic*, c. 7 (present series). Cf. also Kleutgen, op. cit. § 80.

Historically, Hume was the first to try to systematically account for the necessity of these judgments by sensuous experience. Our conviction as to the necessity of the principle of causality, and our belief in the reality of some sort of influx of the cause into the effect, he explains as the result of *custom*. Reiterated observation of one event following another begets the delusion that there is some sort of *nexus* between them, while there is really nothing but *succession*. Later sensationalists with much ingenuity extended the application of this principle; and the Law of Inseparable, Indissoluble, or Irresistible Association was claimed to be an instrument capable of accounting for all our most important intellectual principles. The leading modern representative of the school on this question is J. S. Mill. In his *Logic*, and in his *Examination of Sir W. Hamilton's Philosophy*, he propounded and defended the doctrine that all so-called necessary truths, mathematical axioms among the rest, are merely generalizations from sensuous experience, and their seemingly necessary character is only an instance of inseparable or irresistible association between the ideas of the subject and predicate, which is created by their repeated conjunction. Dr. Bain adopts the same view, but speaks in the most confused manner of the various doctrines opposed to the Empirical theory.[21]

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[21] Cf. *Mental Science*, Bk. I. c. 6. He there mixes up in an astonishing fashion the hypothesis of *innate* ideas, the Kantian system of *a priori* forms, and the *intuitional* theory as held by writers like Dr. Ward, Dr. M'Cosh, and the great majority of modern anti-phenomenists. The *innate* hypothesis maintains that the mind is endowed from its birth with a disposition to evolve these cognitions *purely* from its own nature. External occurrences may be the *occasion*, but they really contribute nothing towards the genesis of these principles. Innatism differs from the Kantian view by ascribing real extra-mental validity to these first truths. The *intuitional* theory teaches, indeed, that the mind is endowed with a native faculty for the apprehension of such verities, but it denies that they are purely subjective contributions. They have their origin in experience, but neither their *necessity* nor *universality* are based upon mere reiteration of experience The human intellect

The Associationist doctrine will be best exhibited by a few citations from Mill, on Mathematical truths: "What is the ground for our belief in (mathematical) axioms? What is the evidence on which they rest? They are experimental truths, generalizations from experience."[22] Accordingly it follows "that demonstrative sciences (*e.g.* Geometry) are all without exception inductive sciences; that their evidence is that of experience." They cannot be legitimately extended to "distant stellar regions," for we are not justified in assuming the uniformity of nature far beyond our experience, and axioms based on such experience are limited to the regions where we know such uniformity to prevail.[23] The "feeling of necessity" with which mathematical and metaphysical axioms are affirmed, is a product of association. To say that a proposition is necessary is another way of saying that its contradictory is inconceivable; and this is precisely the effect to be expected from association. "We should probably be able to conceive a *round* square as easily as a *hard* square or a *heavy* square, if it were not that in our uniform experience at the moment when a thing begins to be round it ceases to be square, so that the beginning of one impression is inseparably associated with the departure of the other. . . . We cannot conceive two and two as five, because an inseparable association compels us to conceive it as four. . . . And we should probably have no difficulty in putting together the two ideas supposed to be incompatible (*e.g.* round and square, &c.), if our experience had not first inseparably associated one with the contradictory of the other."[24] Many such inseparable associations are, admittedly, effected by experience. Darkness is *necessarily* associated in the minds of children and timid persons with terror. We cannot revisit the scenes

or reason, when an appropriate object is presented to it, is capable of perceiving certain necessary relations holding between subject and predicate. It then enounces the proposition as necessary, because it is compelled not by any *a priori form* or *innate idea*, but by the *objective necessity* of the relation which is seen to hold in the *reality*.

[22] Cf. *Logic*, Bk. II. c. v. § 4. It should not be forgotten that the *genesis* and *validity* of a belief are different questions. Still, as we have before urged, they are often intimately connected, and the range and application of a conviction may vitally depend on the mode of its origin—a truth which the reader will perceive by comparing the Kantian, Empiricist, and Intuitional theories.

[23] *Logic*, Bk III. c. xvi. § 4.

[24] *Exam.* (2nd Edit.) pp. 68, 69.

of particular events without recalling them. The ancients could not *conceive* people living at the Antipodes, from their habitual experience that objects so situated would fall off. Now, mathematical axioms and the other primary truths are perpetually forcing themselves on our notice, and are consequently eminently calculated to generate subjective necessities of the character ascribed to them. It is, therefore, illogical to postulate any other origin for these truths, since, like all the rest of our knowledge, they can be accounted for by association and sensuous experience. We have stated the doctrine of Associationism upon this subject at length, because it was considered for a number of years to be the greatest achievement of the Sensist school, and because its untenability, in spite of all the ingenuity devoted to its elaboration, shows the utter insufficiency of the Empirical theory of knowledge.[1]

(1) In the first place the term *inconceivable*, as has been pointed out by every successive writer on the subject, is grievously abused. This word may signify among other meanings, (*a*) *unpicturable* by the imagination, *e.g.*, red by the blind; (*b*) *incredible*, though not intrinsically impossible, *e.g.*, a race of horned horses; (*c*) *positively unthinkable*, in the sense that the proposition so characterized is seen to be necessarily false. Now, throughout Mill's whole treatment of the question, even after hostile criticism had forced him to advert to the ambiguity, he confounds these various meanings of the term in a manner which fatally vitiates his reasoning. Frequency of association may beget in the mind an incapacity to separate two states of consciousness, and long continued experience or absence of experience may make something inconceivable in the sense of (*a*) or (*b*), which is not so in that of (*c*). In affirming that two things, each equal to a third, must always and everywhere equal each other, that $2+3=4+1$, or, that whatever begins to exist must have a cause, we enounce a judgment the reversal of which is not merely inconceivable through an incapacity of the mind: it is *positively* perceived to be absolutely impossible.

(2) To the assertion that the "peculiar feeling of necessity" which marks these axioms is just what would be produced by association, we reply that it is not a matter of subjective *feeling* at all, but an intelligent insight of objective necessity. In my present mental and bodily constitution I am necessarily pained by extreme heat or cold. I am forced to feel certain tastes as agreeable or the opposite; and I cannot *imagine* sensations afforded by a different set of faculties from those with which man is endowed. But reflexion tells me that this

necessity or incapacity is subjective. The facts might be reversed. On the other hand, in contemplating the proposition that two things which are each equal to a third must be equal to each other, I am conscious not merely that I must believe this truth, like any contingent experience, but also that it must objectively and necessarily be so; that it can never be reversed.

(3) Again, many of these necessary truths are perceived to be such too early in life and too rapidly to be explained by accumulated experience. Mill was driven to illogically abandon the doctrine that it is by *real experience of external nature* we are gradually convinced that two straight lines cannot inclose a space, and to adopt the intuitional theory that by reflexion on the ideas of straight lines we can form that judgment. His attempted justification was that the clearness with which the imagination can depict geometrical figures rivals that of actual experience; but this certainly does not hold for many arithmetical and algebraical judgments.[25] The proposition that $4+5=6+3$, when once clearly comprehended in a single experiment, is cognized to be necessarily true, though we may never have noticed the fact, or juxtaposed these ideas before in our life. Similarly, the still more universal truth $x+1+y-1=x+y$. The proposition that a trilateral figure must be triangular, is also seen to be necessarily true, as soon as it is reflected upon, although these ideas may never previously have been compared.

(4) On the other hand, there are numerous cases where two facts have been uniformly conjoined throughout our entire experience, and yet they are not apprehended by the mind as necessarily connected. I have, for instance, always found fire possessed of the property of warmth, yet I can easily believe that this property can be suspended or separated from it, "while by mere consideration of the ideas," without having once experienced some particular mathematical truth, such as that $2+9=3+8$, "I am convinced that not even Omnipotence could overthrow that equality . . . that which I have *never* experienced I regard as *necessary;* that which I have *habitually and unexceptionally* experienced, I regard as *contingent.* Most certainly, therefore, mere constant uniform experience cannot possibly account, as Mr. Mill thinks it does, for the mind's conviction of self-evident necessity."[26]

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[25] Cf. Dr. Ward's *Philosophy of Theism*, Vol. I pp 55, seq., where this point is effectively urged.

[26] Ward, op. cit. pp. 49, 50. Cf. also Dr. M'Cosh, *Exam. of Mill*, cc. xi. xii.

EVOLUTIONIST THEORY.—The Sensist teaching on the origin of necessary truths has assumed a fresh shape in the hands of those writers of the school who maintain the human intellect to have been evolved from that of a non-rational animal. In its present garb the theory claims to possess the combined merits of the hypotheses of *innate ideas*, of *a priori forms of thought*, and of *inseparable association*, while it escapes their deficiencies. Mr. Herbert Spencer is the leading advocate of the new form of the old creed. In his view axiomatic truths, both scientific and moral, are products of experience extending back through the history of the race. The so-called necessities of thought have been produced by association working not merely through the short life of the individual, but away back through the millions of generations of ancestors which have intervened between man and the original protozoa. Mental associations contracted in the experience of each individual modify his organism. These modifications are transmitted by heredity, and appear in the offspring as mental tendencies or predispositions. They continue to accumulate and increase in every successive generation, until the intellectual deposit takes final shape as a *necessary law of thought* or a *form* of the mind. Space, time, causality, duty, are complex notions which have been elaborated during the long ages of ancestral experience. "They have arisen from the organized and consolidated experience of all antecedent individuals who bequeathed their slowly developed nervous organizations . . . till they (*i.e.* mental acquisitions embodied in nervous modifications) practically became *forms of thought* apparently independent of experience."[27]

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[27] *Letter of Mr. Spencer to Mill*, given in Bain's *Mental and Moral Science*, p. 722. The points of agreement and opposition between the evolutionist and other theories of knowledge regarding the origin and nature of these primary truths and ideas are worth noting: A. *The evolutionist* maintains, (1) the existence of obscure innate ideas or cognitions, as (2) an *organic* inheritance, (3) from a previous living being, (4) of a *lower* grade, (5) but originally acquired by sensuous experience, (6) during a vast period, and *therefore* of eminent validity within the field of possible experience: B. *Plato* upheld (1) innate ideas or cognitions, as (2) faint *spiritual* vestiges (3) of a *previous* life, (4) of a *higher* grade, but (5) not derived from *sensuous* experience, (6) and *therefore* of eminent validity. C. *Descartes* and *Leibnitz* defended (1) innate ideas or cognitions, as (2) *Divinely* implanted in the mind in a potential condition, (3) and *therefore* of eminent validity: D. *Kant* holds (1) innate forms, (2) antecedent to and conditioning *all* experience, (3) and *therefore* formally necessary within the field of possible experience, but (4) of

The eagerness with which the new theory has been received by disciples of the Sensist school shows how utterly inadequate the old Associationist view was felt to be, even among the circle of its own advocates. Yet careful examination of the subject has convinced us that the solitary argumentative superiority the new doctrine possesses over its parent is that of removing the question from the region of rational discussion, and situating it where proof and disproof are alike impossible. This, however, is hardly an excellence which the empiricist can consistently admire. The only criterion which he recognizes is that of experience; the first condition of a hypothesis, capability of verification. Now, there is no theory, however wild, that has ever been broached on the subject—not even that of the ante-natal existence of the soul conjured up by the poetic fancy of Plato—which is more utterly beyond the possibility of scientific proof than the new doctrine. If it has to be admitted by positivist psychologists that it is practically impossible to get reliable evidence concerning the earlier mental states of the infant, it can hardly be disputed that the nature and development of the intellectual and emotional faculties of our remote ancestors of pre-human times are completely shut out from our ken.[28] Geology and Palæontology may throw light on the anatomic structure of the earlier forms of animal life, but their mental endowments cannot be deduced from their fossil remains. Consequently, any hypothesis put forward as to the character and growth of the notion of space, time, causality, and morality in the alleged transitional species of past ages is as much outside the pale of science, as are the habits and customs of the natives of Sirius. The earlier sensationists, defective though their system was, at all events appealed in great part to a tribunal before which evidence could be tendered, and they at least professed to base their creed upon the facts of human consciousness; but, as Dr. Martineau forcibly urges, "their modern followers take refuge from this strong light in an earlier twilight where nobody can tell exactly what goes on. . . . If Hobbes, as often happens, gives us a piece of droll psychology, every one who knows himself can tell whether it is true or false, and lay his finger on any distortion

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no real validity as applied to *things-in-themselves*: E. *Associationism* denies innate ideas in any form, and ascribes the *necessity* of these special cognitions to the continuous experience of the individual's own life.

[28] This is admitted by some writers of the Sensist school. Cf. Croom Robertson, "Axioms," *Encycl. Brit.* (9th Edit.); also Sully, *Sensation and Intuition*, pp. 10—13.

it contains. If Darwin describes the inward conflict of an extinct baboon, he paints a fancy picture of what remains for ever without a witness."[29]

Furthermore, the doctrine of transmitted hereditary experience as applied to *necessary* truths rests on a profound psychological misinterpretation of their character. It is credible that an instinct, or a tendency towards a particular species of emotion or action can be inherited, but the intuition of necessary truths is something essentially different. We have before pointed out that we do not apprehend the necessity of an axiom from any blind incapacity or negative limitation of thought; on the contrary, it is the translucent self-evidence of the truth itself which extorts assent. We may in our present constitution be *necessarily* pained by extreme cold and heat, we may *necessarily* relish honey, or enjoy the scent of the rose, yet that these things are *necessarily* so for all consciousness we do not judge; but, that two things each equal to a third are equal to each other, we not only necessarily affirm, but affirm *as* necessarily holding in *all being*, and *for all intelligence.* Assent to self-evident axioms is, then, not a blind instinct due to habit either inherited or acquired, but a rational apprehension of intelligible relations objectively true.

Again, the hypothesis is exposed to the objection, *quod nimis probat nihil probat.* If it is true that ancestral experience has been transmitted in this way, we ought to find (*a*) innate cognitions of a large number of other phenomena, and (*b*) a more perfect knowledge of space and other native endowments in the human infant than in young animals of inferior species. Now as regards (*b*), although we do not see sufficient evidence for denying to babies an intuitive though vague perception of extension, it would seem to be certainly established that chickens and young pigs apprehend space from the first with an accuracy scarcely attained by the fully developed man. As for (*a*), if it is true that the peculiar feature of necessity pertaining to these truths is due to the uniform experience of our ancestors, registered and transmitted in nervous tissue, it is not easy to see why such judgments as that "fire burns," "stones fall to the ground, and sink in water," "timber floats," "night follows day," and the like, have not a similar character. These propositions must represent a pretty uniform experience of our ancestors for a long way back in the series, while the number of occasions on which it was cognized that 7+5=3+9, or the number of times when the idea of "trilateral" was com pared with that of "triangular" and found to be conjoined in experience, cannot in the pre-mathematical age have been very frequent; yet the former are perceived to be *contingent*, the latter *necessary*.

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[29] *Types of Ethical Theories*, Vol. II. p. 340.

Another difficulty may be urged as to the nature of that experience which generates these mental *forms*. What is the "environment," the "cosmos," that has been gradually creating these necessities of thought? All forms of sensism logically reduce space and extension to muscular feelings. Such a "cosmos" is, however, obviously of too shadowy a character for the needs of evolutionism. Mr. Spencer, indeed, here postulates an infinite unknowable energy as eternal, but other disciples, such as Mr. Sully, though sympathetic on many points, look upon this assumption as a surviving relic of the vulgar anthropomorphic instinct.[30] Anyhow the difficulty remains: do these necessities which get translated into our consciousness condition that objective energy *in itself?* If so, then we would seem to have got the admission of objective necessary truth which holds for all being, and which reveals itself to the mind.[31] If not, what right is there for assuming that the action of this eternal energy was universally uniform throughout all past time? There remains, finally, the insuperable objection that the soul being a spiritual principle, as we will prove hereafter, cannot have been inherited from non-rational animals.

INTUITIONALIST DOCTRINE.—The true view lies between
Innatism and Empiricism. Although all knowledge starts 1
from experience, it is false to assert that all axioms are
mere *formulæ* summing up a gathered experience, whether of
the individual or the race, and that our knowledge is limited
to the range of such experience. *Necessary* truths may be 2
either self-evident or deduced from such by demonstration.
To the ordinary human mind the theorems of Euclid are
examples of the second class. The self-evident necessary
truths which comprise the various axioms are discerned by
rational or *intellectual intuition:* that is, by simple consideration 3
of the objects of thought about which they are affirmed.
Just as we are capable of perceiving contingent impressions
by sense, we have also the power of apprehending the *natures*
of things, and the *necessary relations* which these involve by
the intellect. These intellectual intuitions start from com- 4
parison exerted in singular instances, and it is only later on
by a deliberately reflex act that the universal truth which

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[30] *Sensation and Intuition*, pp. 20—22.

[31] Cf. Martineau's *Types of Ethical Theories*, Vol. II. pp. 356—358.

these particular cases contain is formally generalized. I do not begin by an intuitive recognition of the abstract universal truth, *What is greater than the greater is greater than the less;* but, observing A to be greater than B, which I also know to be greater than C, I intuitively recognize as a self-evident necessary truth that A must be greater than C, becoming at the same time implicitly aware of the universal principle exemplified. Afterwards, by a deliberately reflexive act, I elevate this implicit cognition to the rank of the explicit or formally universal truth - *every* such A must be greater than C I have thus reached the Axiom without a protracted comparison of a large number of A's with C's. The process is similar in the discovery of the *Principles of Contradiction* and *Causality*. Neither is a mere generalization from a multitude of observations, and neither is held in an abstract form by the child. But apprehending by the intellect, in the one case "this thing beginning to exist," and, in the other, "this being or this thing existing," and the universal truths illustrated, there is needed only an easy effort of reflexion upon the notions employed in the singular comparison to intuitively recognize the Axiom. Afterwards in complicated reasonings I may recur to the general rule to justify a particular step about which I am dubious, but the relation is first apprehended in the singular experience.[32] Truths of this character are rightly termed *transcendental*. They are not limited to the field of observed phenomena. They underlie and extend beyond experience, and they constitute a body of knowledge of an entirely distinct order from that comprised in the experiential sciences.

We have now discussed the leading erroneous theories concerning intellectual ideas and axiomatic truths. Moreover, although the exposition of the true doctrine on this second question would from a logical point of view more appropriately follow our treatment of conception in the next chapter, it has, nevertheless, seemed to us on the whole more convenient to deal at length with the subject here, confining ourselves to a very brief remark there. We will next proceed to that solution of the first question which seems to us to best harmonize with the facts. Our experience shows us that the objects of cognition are of two essentially distinct kinds, the one universal, abstract, or necessary; the other concrete, individual, and contingent. These different elements reveal themselves to different faculties, the one intellectual or spiritual, the other sensuous or organic. Still, although the soul is endowed with apprehensive powers of two orders essentially distinct, these are not to be conceived as two entities or members standing apart from each other, and merely accidentally united by a common bond. They are, on the contrary, two properties, two functions, or rather two capabilities of the same substantial principle. The mind is a unity, in fact it is the type for us of every other unity; but nevertheless it is the source of distinct species of activity. The problem, then, to be solved, as apprehended by the most profound and penetrating of Greek minds, and by the acute thinkers of the middle ages, was: How are sensuous and intellectual knowledge related? how do the higher and lower activities reciprocally act on each other? how does the affection of organic sensibility excite the spiritual faculty to thought?

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[32] Cf. Dr M'Cosh's *Intuitions of Mind*, Bk I. Pt. I. c. ii. §§ 3, 4. For an admirable exposition of the scholastic doctrine regarding the nature and origin of axiomatic truths, cf. Kleutgen, op. cit. §§ 288—309.

Readings.—The literature on the nature and origin of Necessary Truth is abundant. Essays 1, 2, 4, and 5, in Dr. Ward's *Philosophy of Theism*, Vol. I. are exhaustive. Cf. also Dr. M'Cosh, *Exam. of Mill*, cc. xi. xii. and *Intuitions of Mind*, passim; and Mr. Courtney's *Metaphysics of Mill*, cc. vii. viii.

CHAPTER XV.

CONCEPTION. ORIGIN OF INTELLECTUAL IDEAS (*continued*). THE PERIPATETIC DOCTRINE.

THE object of the Aristotelian theory of *Intellectual Abstraction* is, as we have observed, to explain the mutual relations of the sensitive and intellectual functions of the human mind in the elaboration of knowledge. It is thus a hypothesis put forward to account for certain well established facts, and its value is to be estimated, like that of other hypotheses, by its success in the interpretation of the phenomena. Whatever be its worth—and we believe it to be vastly superior to every other attempt to solve the difficulty—it of course stands on quite a different level from that of the tenet, that intellect is essentially different from sense. This latter we believe to be a demonstrated truth, while the former can only be fairly described as a probable or plausible theory.

We say this in order that the reader may understand the relative importance of the two doctrines. There might be a danger lest certain minds feeling dissatisfied with the scholastic treatment of the secondary question, should, through want of clearly recognizing its subordinate character, suppose that the validity of the primary article of the system was thereby vitiated. This would be a lamentable evil, and we deem it a matter of considerable moment, that the relative importance of different tenets forming part of the teaching of the great doctors of the middle ages should be rightly apprehended. Modern writers, with most superficial information regarding mediæval thought, are in the habit of profoundly mistaking the weight assigned to different questions. Consequently, they would make the grand fabric of the whole scholastic system stand or fall with a few ingenious and very speculative solutions of subtle metaphysical problems of comparatively inferior significance. Having premised these remarks, we will briefly sketch the theory of the *abstractive activity*[1] of the intellect, adopted from Aristotle by the schoolmen.

PERIPATETIC THEORY OF INTELLECTUAL ABSTRACTION.—This system starts from the truth already established, that the cognitive powers of the mind are of two orders essentially distinct. Sense (*αἴσθησις*) is the lower; Intellect (*νοῦς*) is the higher. The formal object of sense is some concrete phenomenon, or some quality of a material thing; that of the intellect is the being or essence[2] of things. In other words, sense is directly percipient of some individual accident, whilst intellect apprehends the being of the object. Sense is a passive capacity requiring to be determined from without. Intellect is partly passive (*νοῦς παθητικός, intellectus patiens vel possibilis*), and partly active (*νοῦς ποιητικός, intellectus agens*). However, these diverse names denote merely different aspects of the same mental power. The former designates intellect as susceptible of modifications, the latter indicates the intellect as the agency which effects this self-modification.

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[1] It should be noted that the schoolmen employed the words *abstraction*, and, *to abstract*, in the converse signification of that which has prevailed since Kant. With modern writers intellectual abstraction primarily signifies the ignoring or omission of the attributes *not* attended to; with the schoolmen it was understood to primarily mean the positive side of the operation—the assumption by the mind of the part selected, of the attributes which *are* attended to. A process of abstraction, therefore, formerly signified the *taking up* of something. Now it would signify the *neglect* of something. (Cf. *Logic*, present series, pp. 102—104). The old usage was etymologically the more accurate, but as the modern practice has become now virtually universal we have followed it ourselves outside of the present chapter. Cf. c. xiii

At the beginning of life the mind possesses no knowledge; there are no innate cognitions. It is described as a *tabula rasa*, or clean tablet; but this term is not completely appropriate, since a tablet is purely passive, endowed with no inherent activities. The first intellectual ideas or concepts which we form are of material sensible things. This is shown by several observed facts: (1) It is about sensible material things that our first judgments are elicited. (2) It is to images of sensible objects that we recur for illustration and assistance in abstract reasoning. (3) The words employed to express supra-sensuous realities primarily signify material phenomena. (4) Those deficient in any sense from birth are deprived of a corresponding class of ideas. These facts also prove that it is in sensible things the human intellect, in its present condition, finds its proper object.

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[2] The word *essence* is here taken in its widest sense, as including being in general—not as designating solely the specific nature of a particular object. Every answer—no matter how vague—to the question, What? reveals *essence*, or *quiddity*, in this wide sense. For a detailed account of *essence*, cf. *General Metaphysics*, c. iii.

To apprehend any of these material things the intellect must undergo a modification or change. This modification by which it is determined to know a given object is called the *species intelligibilis.* By this *species* the spiritual faculty is assimilated to its object, just as the lower faculty in sense perception by the *species sensibilis.* In order that such a *species intelligibilis* or modification of the intellectual power of the soul be generated, there is needed, as a previous requisite, the excitation of the senses by the object, and the formation of an image of it in the imagination. For this reason the latter faculty is said to contribute to the elaboration of the concept by supplying the *material* elements or conditions. These are then said to be "spiritualized" or "dematerialized" by the intellect in such a way that a mental representation of the object of a purely spiritual character is generated. By this is meant that when the concrete phantasm of the material object is pictured in the imagination, the intellect is awakened to elicit an act of a higher order in which the *essence* or *being* of the object revealed in the image is represented without individualizing conditions. On this account the intellect is said to *abstract* the essence of the object.

It is for the explanation of this abstractive process that there has to be attributed to the intellect, besides the capacity of being modified so as to represent the various objects, an active energy or force which is chief agent in the production of this modification. This activity of intellect, which, reacting on the occasion of sensory stimuli, effects the modification by which the object is apprehended under a universal aspect, is the *Intellectus Agens.* It is defined to be *a certain spiritual force or energy of the mind, which acts instinctively on the presentation of objects in the imagination, and generates "species intelligibiles" of them,* or, *an active faculty whereby the intellect modifies itself so as to represent in a spiritual or abstract manner what is concretely depicted in the phantasm.*

The steps by which the existence of this special Intellectual activity is established are these: (1) All knowledge starts from sensation; we have no *innate* ideas. (2) We are *de facto* in later life possessed of intellectual ideas or concepts. (3) These are of a supra-sensuous character; they express material things in an immaterial manner. They are, in fact, spiritual modifications or accidents of the soul. (4) Now the production of these modifications by which the mind becomes cognizant of the corresponding objects, must be due either: (*a*) to a material agent such as the object itself, or to an organic faculty such as sense or imagination, or (*b*) to an external spirit, angelic or Divine, or (*c*) to a spiritual activity rooted in the soul itself. As regards (*a*), neither the object, sensuous impression, nor phantasm, can generate the *species intelligibiles;* for this modification is a spiritual accident, and none such can be effected by corporeal agencies. The proof of this is based on the general axiom, that, *no* *being can effect in another what is not contained in itself, either formally or eminently;* for a spiritual accident is contained neither formally nor eminently in a corporeal agent.[3] As to (*b*), it is a fanciful and gratuitous hypothesis, incapable of any sort of real proof, to assume that our ideas are the effects of an external spirit; and this view is also discountenanced by the fact that it is of objects acting on the senses such ideas are first formed.

· Hence there remains alone (*c*), the third alternative, that it must be the intellect itself which, by its own active energy, on the occurrence of the sensuous impression, instinctively modifies itself to represent the nature of the object. This operation of the *intellectus agens* is instinctive in the sense of not being preceded by any intelligent act; it is the first exertion of the higher power. The question may here be raised why should the *intellectus agens* issue into the precisely appropriate activity, why should it effect exactly the right modification to represent the object of the sensuous impression, when this latter cannot directly act upon it? The answer to the difficulty, it is replied, lies in the fact that both sensuous and intellectual actions are functions of the one indivisible soul, which is so constituted that on the excitation of the former the latter must also sympathetically respond by a reaction of a higher order.

The process in brief, then, is this. An impression is wrought on a sensitive faculty. This results in a sensuous phantasm in the imagination, and here the work of the lower power ends. Since, however, in man the sensuous faculties of cognition have their source in a soul endowed also with intellectual aptitudes, these latter now issue into action. The presence of the phantasm forms the condition for rational activity, and the intellect by its own active and passive capabilities generates the concept which expresses the essence of the object.[4]

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[3] For an admirable detailed account of the scholastic doctrine on this subject, cf. Kleutgen, *Philosophie der Vorzeit*, §§ 18—32, 45 49, 67—80, and 776, 777

The intellectual act considered in its earlier stage as a modification effected in the recipient capacity of the *intellectus possibilis*, is called the *species intelligibilis impressa*. Viewed in its more completed form as a mental modification reflecting the essence of the object, and by means of which the object is apprehended, it is called the *species expressa*. The same act looked at under a slightly different aspect as the apprehension or expression of the object by the mind to itself, is called the *verbum mentale*, or mental word.[5] Finally, the same product considered as the intellectual expression of the essence of the object abstracted from its individualizing notes, is called the *direct, fundamental*, or *potential universal*. The concept in this stage viewed as the result of the action of the *intellectus agens* is not *actually* or *formally* a *universal*. It prescinds alike from universality and individuality. It merely expresses in an indeterminate manner the being or nature of the object, omitting all individualizing conditions. It is by a subsequent reflex act that this potentially universal concept is considered as a representative of an indefinite number of objects, and so converted into the *formal reflex universal* of the logician.[6]

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[4] The operation is described in various ways by scholastic writers. The *intellectus agens* is said: (1) to *convert* or *direct itself* towards the phantasm (*se convertere ad phantasma*), and (2) to *abstract* from it the essence (*abstrahere essentiam*), or, (3) to *illuminate* and make *actually intelligible* what is *potentially intelligible* in the phantasm; moreover, (4) throughout the process the *intellectus agens* is chief agent (*agens principale*), while the phantasm is viewed merely as an instrumental agent (*agens instrumentale*). Cf. St. Thomas, *Sum* q. 85. a. 1, ad 3 and 4; *Quæst. Disp. de Verit.* q. 10, a. 6, ad 7 and 8; *Quodlib.* 8, a. 3; *Contra Gent.* l. ii. cc. 76, 77; Suarez, *De Anima*, Lib. IV. c. 2. nn. 13—18; Liberatore, *Psychol.* §§ 208—214. This metaphorical language is used to try to elucidate by analogies what is involved in the single instantaneous act: (1) Indicates that the concept formed by the *intellectus agens* is of the object represented by the phantasm The intellect is likened to a painter who turns towards the object he is about to copy. (2) Since the concept formed by the intellect expresses the essential attributes of the phantasm they are said to be *abstracted* from the latter. (3) Here the *intellectus agens* is likened to the sun *illuminating* colours indiscernible in the darkness though *potentially* distinguishable. The phantasm contains *potentially* universal relations individualized in concrete material conditions, and the activity of intellect evokes them into the light of actual consciousness. (4) The *intellectus agens* is termed *agens principale*, inasmuch as it plays the most important part in the operation, being *causa efficiens*.

ELABORATION OF CONCEPTS.—In addition to the primitive instinctive abstraction of the intellect, the complete formation *of formally universal ideas* involves *attention, comparison, analysis*, and *generalization*. The final product may then secure permanence by the application of a *common name*. The primary direct act of the intellect generates the idea of the being or nature of the object in the vaguest form. It is the initial step in every rational cognition, and by it we apprehend the perceived object as *something*, as a *being*. With the multiplication of experiences we become aware that there are groups of similar features present in different objects. The intellect next begins to *attend* to these common attributes, which are at first noticed in a confused manner. As experience extends we consciously *compare* and observe the points of similarity between the beings successively perceived by us. We distinctly recognize that objects are like in some properties, unlike in others. This discernment of likeness amid difference gives birth to *analysis*, or the mental separation of the identical from the varying elements. The continual repetition of the same attribute, or set of attributes, gives more and more determination and precision to our notions of different kinds of beings, we begin to deliberately reflect upon these notions, and then we *generalize* them as representatives of the innumerable individuals of their class.

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[5] The occasional contemptuous allusions of modern writers to the *verbum mentale* of the schoolmen exhibit an amusing ignorance of what was signified by the term. The phrase simply means with mediæval writers the *thought* or *mental act* corresponding to a common noun, *e.g.*, triangle, man, responsibility. These words, it may be presumed, have a *meaning* or *connotation*. The *thought* by which the mind comprehends that meaning is the *verbum mentale*, just as the vocal sound by which it communicates this thought to another intelligence is the *verbum orale*.

[6] On the *direct* and *reflex* universal, cf. Rickaby, *First Principles*, pp. 316, 317.

Thus gradually by successive discriminations, our concepts ot objects of different species are perfected. Under the term "objects" should, of course, be included abstract qualities, such as colour or shape, as well as substances. Our numerous concepts, however, could neither be retained nor communicated to others, unless they were embodied in some definite sign, and hence we mark them by general names This is the final act of *denomination*.

The recurrence of the name will in the future awaken sensuous images of individual objects perceived in the past; but its essential function is to express the nucleus of attributes which constitute the common nature apprehended in the universal idea. According as the acquisitions of the mind increase and its conceptions grow in number and precision, the facility with which each newly-apprehended object is recognized as belonging to a determinate class is augmented.

Given intellectual concepts of the natures of things formed in this way, by reflecting on them and comparing certain of them together the various axiomatic judgments are intuitively seen to be necessarily true. Thus, it is not the accurate measurement of real objects nor the juxtaposition of sensuous images which enables me to affirm that two things, each equal to a third, must be always equal to each other. It is by comparison of the *intellectual ideas* I intuitively discern that necessary truth. Similarly, it is not because the representation or perception of an event is always preceded by that of another, that I affirm *as necessary* the principle of causality. On the contrary, it is because, having formed the intellectual idea of incipient being, or of actually existing being and of its non-existence, when I reflect on these ideas I intuitively perceive as a necessary universal truth that nothing can of itself pass from the state of non-existence to reality, although at the same time I can easily imagine objects springing into space without imagining their causes.

The primordial activity of the intellect constitutes us, as we have said, cognizant of the *being* of the sensible object. By this act we penetrate beyond the mere phenomena of which sense makes us conscious; we apprehend the "*is-ness*" of the thing, we know it as *being*. This apprehension of being is the first intellectual act, and it is repeated in every future operation. The primitive stage of each cognition is (the quasi-judgment that) "this is *something*," and by a process more or less rapid this universal and indistinct notion is defined and limited until we reduce it to a narrow species, or by a reflective act identify it with an individual.

The first step in intellectual knowledge is precisely what the Sensist Psychology from Locke onwards is incapable of explaining. It is not true, as Dr. Bain and Mr. Spencer allege, that we can only know a thing as *like* or *unlike* some other thing. We are not in the distressing situation of Buridan's ass, unable to know *x* because we do not know *y*, and unable to know *y* because we do not know *x*. The earliest intellectual act is not the judgment "*x* is like *y*," but the apprehension "*x* is something," or "*x* is," or "*That is a being*."[7] The notion of *being* interwoven in all our knowledge is not an abstraction gathered from a long sensuous experience, nor yet an *innate idea* antecedent to all experience. It is a *form* of all knowledge, a *datum* of all cognition, but not therefore as Rosmini asserted an *innate form*, a *subjective* datum. The indeterminate idea is a necessary condition of knowledge because the objective attribute is a necessary constituent of whatever is known. This idea is generated at the dawn of intellectual life, but at first it has only a rude and ill-defined character. The abstract or philosophical conception of being is, indeed, elaborated by an abstractive process of a reflexive character later on in life, but the indeterminate idea is possessed by every man from the first moment when he is conscious of the intellectual perception, "that is something."[8]

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[7] One of Mr Spencer's most laboured assaults on the possibility of a notion of the Absolute (*First Principles*, pp 79—82), loses its entire force when it is seen that *all cognition* is not necessarily *recognition*, and that "God being unclassable," is not thereby "unknowable" The primitive intellectual act is not *recognition* of likeness or assimilation with a class, but the *cognition* of the object as *something*

In the elaboration of concepts of specific essences language plays a very important part. Hamilton has characterized words as the *fortresses* of thought; and the phrase expresses very fitly one of their most important functions. They establish and secure our command over conceptions which have been gained by a protracted experience, and might otherwise be soon lost. By definition a term is made to signify a determinate group of attributes which we have frequently found together. It registers the result of a series of observations; it is readily represented in imagination; and serving as a general symbol it is handled with the greatest ease in our reasoning processes Not only, however, does the application of names give fixity and precision to notions wrought out by the mind itself, but the value of words is even more strikingly exhibited as instruments of communication. Considered under this aspect, their influence on the mental development of both the individual and the race can scarcely be exaggerated. The child born into the inheritance of a cultivated language starts from a level that it has required numberless generations of great minds to build up; and just as cities, roads, railways, canals, and machinery of every kind are the labours of the genius of past centuries towards his material welfare, so the vocabulary of which he is put in possession with almost equal facility is an accumulated legacy of incalculable worth in the enrichment of his intellectual life.

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[8] On the priority of the idea of *Ens*, cf. St. Thomas, *Sum*. i. q. 85. 3. Balmez devotes the greater part of Bk. V. of the *Fundamental Philosophy* to the discussion of the nature and origin of the idea of *Being*. The solution of the old problem of the *Primum Cognitum*,—*scil*. whether the *universal* or the *singular* is first known—is now obvious. The object of sense is always the individual, and as intellectual activity is subsequent to that of sense, if the two faculties are compared singular cognition is earliest. Still, even in sensuous knowledge progress is from the confused and vague to the clear and distinct, and the intellect begins with the most indeterminate and universal of all ideas, so that viewed in the most general manner knowledge proceeds from the less to the more definite.

The chief objections against the scholastic theory of intellectual abstraction which suggest themselves to the modern reader are probably: (1) that it wears an excessively ingenious and artificial air, and (2) that it dismembers the mind, viewing the latter partly as a system of boxes or compartments, partly as an assemblage of distinct and independent agents, while cognitive acts or states are looked upon as material articles that can be taken out of one chamber, remodelled, and replaced in another. In reply it may be observed: (1) Ingenuity is not a reasonable objection to urge against a hypothesis. Many of the best accepted explanations put forward by physical science are based on what must be considered to be ingenious suppositions. Artificiality or extreme subtilty is undoubtedly a defect in a theory if any simpler account can be rendered of the facts; but if the simpler theories cannot embrace the facts, then the more complicated hypothesis becomes a necessity. (2) The charge of "dismemberment" can only be urged by those who misinterpret our description in a crude materialistic manner. In speaking of mental processes, indeed, we are forced to employ words primarily designating material things, and in analyzing the several phases of an intellectual operation, which is itself almost an instantaneous act, we may seem to assign to these phases independent existence; this, however, is not the fault of Psychology, but a necessary consequence of the use of human language. The scholastic theory as expounded by its best interpreters gives no real justification for the charge of anthropomorphically personifying aspects of mental activity, or of converting the faculties of the soul into isolated compartments.

Laying aside the metaphorical terminology adopted to facilitate the conception of the theory, or to win plausibility for it by the suggestion of analogous phenomena in the material world, the essentials of the doctrine so far as the mind alone is concerned are expressed in two propositions: A. The simple indivisible human mind is endowed with two cognitive activities of a different order,—the one sensuous, the other intellectual. B. The excitation of the former by sensible objects constitutes the sufficient reason or condition of the soul's responding through the latter activity by an appropriate cognitive act. The doctrine, thus stated, is no more guilty of splitting up the unity of the mind than any system which acknowledges that volition is an activity distinct in kind from passive sensibility. The true disintegration, as we have already indicated, is not to be laid to the charge of the scholastics, but to that of the disciples of Hume, who would have us conceive the mind as a bundle of atomic feelings or impressions. The terms, *intellectus agens*, and *intellectus patiens*, denote the same rational soul considered under different phases, and from different points of view. The *species intelligibilis* is not, as some modern opponents of the doctrine seem to imagine, a portable image, but a modification or state of the mind. The *abstraction of the essence* intended, is not the physical excision of the interior of the phantasm from the rest, and its transference into another chamber, but the conception of the universal features and relations of the object by a higher activity of the mind.[9]

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[9] The scholastic difficulties usually urged against the theory were: (1) The action of the *intellectus agens* would be *uncaused*, since not directly excited by the sensation or phantasm. (2) To "abstract" the universal concept the *intellectus agens* must already *know* it, but if so, the concept is already possessed (3) The intellect in this view represents objects in an *abstract* manner, that is otherwise than they are, and so *falsely* (4) The primary act of intellect cannot be the apprehension of the essences of things, since these are known, if at all, only after much labour. *Ans* (1) Intellect and sensibility are not independent agents but properties of the one indivisible soul, and so the sensation can constitute the sufficient reason for the exertion of intellectual energy. (2) *Reflexive* abstraction presupposes intellectual knowledge, but the abstractive action of the *intellectus agens* is instinctive, or the result of a natural necessity on the occurrence of the phantasm, and it is not preceded but followed by the intellectual concept. (3) The representation is

Readings.—All the Latin manuals expound the Aristotelian theory of the origin of ideas at length. The account of the subject given by Liberatore, *Psychologia*, c. iv. art. 6, is among the best. Schiffini, *Psychologia*, Disp. ii. sect. 6, is also good. St. Thomas' doctrine is also explained in Liberatore's work, *On Universals* (Trans. by E. H. Dering), Opus. II.

inadequate but not *false*, since its completeness is not *affirmed*. (4) The primitive apprehension is of the essence or being in the vaguest and most indeterminate form; laborious investigation may be requisite for more perfect cognition. For a fuller treatment of these objections we must refer the reader to the Latin text-books.

CHAPTER XVI.

JUDGMENT AND REASONING.

UNDER the term *thinking*, besides the formation of concepts, there are included the operations of *judgment* and *reasoning* or *inference*. These several actions are, however, merely different exercises of the same faculty, the *intellect*. As we have already in chapter xiii. dwelt on some of the most important aspects of judgment, we will handle the subject very briefly here. We will also in the present chapter examine the special features of judicial activity exhibited in belief and conscience.

JUDGMENT.—A judgment is that mental act which is signified in an oral proposition, such as, "Gold is heavy." It has been defined as *the mental act by which we perceive the agreement or disagreement between two ideas*, and also as *the mental act by which something is asserted or denied.** If the former definition is employed, it should be remembered that the word "idea" here means, not the state of consciousness, but the *objective* concept (*conceptus objectivus*), the attribute in the external thing corresponding to the subjective idea. Locke and some other modern writers have taught that the formal object of the judgment is the agreement or disagreement, the congruence or conflict of two subjective notions. This is an error based on a false view of the nature of cognitive consciousness. The most essential feature of all knowledge, except of course that which is reached by introspection, is its objective import. But in man the judicial act is the type of perfect knowledge, and accordingly carries in its constitution in an especial manner this reference to external fact. In the assertions, "Water rusts iron," "Some sausages are not wholesome," "Trilateral figures are triangular," very little reflexion reveals to us that we do not merely allege a relation between the two conceptions juxtaposed in the mind. The true meaning of these statements is that something does or does not hold without the mind, in *rerum natura*.[1]

Although in the primitive act of apprehension there is contained an implicit affirmation that the object perceived exists, nevertheless *comparative judgment*, or judgment properly so called, is naturally subsequent to apprehension. The comparison of ideas in the mature judicial act obviously presupposes the apprehension of the compared terms. It is inaccurate then to say that all universal concepts are the result of comparative judgments. Specific ideas, it is true, have reached their final elaboration and definition by many acts of comparison, discrimination, and identification, but the primordial and most general of all notions, that of the *being* of things, is an immediate effect of the direct activity of the intellect previous to any such comparative process at all. Still, although the primary act of the Intellect is the apprehension of *being*, and although this apprehension is repeated in every subsequent act, the chief agency by which our knowledge is extended lies in the synthetic and analytic activity exhibited in the exercise of comparative judgment. By means of it we bring into clear and distinct consciousness the various attributes of the object presented to us; we discern it to be a substance of a certain magnitude, a living being, a quadruped, a horse, and finally a particular well-known hunter.

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[1] This doctrine, which is the common teaching of St. Thomas and the leading scholastics, has been re-asserting its truth from widely different schools of logicians during the past thirty years. Mill devoted considerable pains to establish it against Hamilton and the conceptualist logicians. (Cf *Logic*, Bk I. c. v. and *Exam* c. xviii) As, however, his defective system compelled him to reduce mathematical judgments to the comparison of ideas, and as the "things" or "phenomena" about which the predication is uttered in experiential judgments are analyzed into aggregates of mental states, his remarks here are merely another instance of those curious lucid intervals during which his psychological penetration was wont to get the better of his logic. Ueberweg emphasizes this feature in his definition of the judgment as "the consciousness of the objective validity of a subjective union of conceptions, whose forms are different but belong to each other." (*Logic*, § 67.) Mr. Bradley adopts the same view. (*Principles of Logic*, cc. i. ii.) The student will find this aspect of the judgment treated in the volume on *Logic* of the present series, Pt. II c iii., and at greater length in the volume on *First Principles*, c. ii.

The affirmative judgment is naturally prior to the negative. We must notice the existence before the non-existence of an object; we must observe its presence before we can think of its absence. It has been at times asserted that the act of judgment is something really distinct from and superadded to the perception of the agreement or disagreement of the two objective concepts. The dispute turns only upon those real judgments the truth of which is apprehended as evident; but the view just stated seems to us incorrect. The judgment, "$2+1=3$," or "This sheep is black," is simply the cognitive act by which the truth is apprehended. There may be drawn a logical distinction between the cognition of the relation between subject and predicate, and the assent or acquiescence of the intellect, but they are not really separable or different.

A far graver error, however, is to confound, as Malebranche did, the act of *assent* with that of *consent*, attributing the judicial operation to the faculty of the will. The enunciation of the judgment in the oral proposition involves an exertion of voluntary power, and the original comparison may have been initiated by a volition, but the essence of the judicial act lies in the perception of the relation between the compared members. Still the will has a most important influence on the exercise of our power of judgment. If, indeed, the relation between the two terms is evident, desire is powerless to affect the verdict, so long as the mind contemplates the truth. No effort can enable me to judge that $2+2=5$, or that sugar is sour. Nevertheless, even regarding truths in which the evidence falls little short of that contained in these examples, perversity of will may produce scepticism. By directing attention away from the proof and concentrating it on plausible difficulties we can after a time come to virtually disbelieve what we once cognized as certainly true.[1] If the arguments on neither side amount to rigid demonstration the decision lies, as is well known, almost entirely in our own choice. Judgments of this kind where assent is yielded, yet on evidence that does not exclude all possibility of error, exemplify the characteristic features of certain mental state classed under *Belief.*

REASONING.—Besides conception and judgment there remains a third function of the intellect, that of *Reasoning* or *Inference.* It may be defined as, *that operation by which we derive a new judgment from some other judgment or judgments previously known.* When we pass from a single judgment to another involved or contained in it, the act is styled an *immediate* inference. Thus, from the proposition, "All men are mortal," we *immediately* conclude, "Some mortal things are men." When we proceed from two or more judgments, to a new judgment following from their combined force, we have *mediate* inference. Mediate inference is also defined as, that mental act by which from the comparison of two ideas with a third we ascertain their agreement or difference. If in the process of ratiocination the movement of the mind is from a wider to a narrower truth, it is called deductive reasoning; if the reverse, it is characterized as inductive.

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[1] This psychological fact explains a difficulty frequently urged in Natural Theology. How, it is asked, can it be maintained that the existence of God is really proved, when many intelligent men are found to deny this truth? The answer is not that all these men are asserting what they at the time inwardly disbelieve; but that the bent of their minds from early training, from dislike of particular portions or consequences of the doctrine of Theism, or from prejudice created in any other of a numberless variety of ways, perverts their estimate of the evidence. Practical questions in which men's feelings and sympathies are already enlisted afford numberless illustrations of this phenomenon. For some admirable remarks on the right relation of Will to Intellect in Philosophy, see Mr. Wilfrid Ward's excellent little work, *The Wish to Believe.*

Thus in the syllogism:

All bodies containing carbon are combustible,
But diamonds contain carbon,
THEREFORE diamonds are combustible,

we argue *deductively*.

On the contrary, if from perceiving that iron, gold, lead, copper, and all the kinds of metals which I have tried, sink in water, I infer, *all metals sink in water*, I am said to argue *inductively*, and in the given case falsely. The chief part of the science of Logic is devoted to investigating the conditions or rules by observation of which these different forms of reasoning may be validly conducted. The essence of the process of reasoning consists in the apprehension of the *consequence*—in the mental act expressed by the words *therefore, since, because, accordingly*, and the like. Careful introspective examination reveals to us that the intellectual operation throughout is merely a repeated application of the judicial act. The faculty of ratiocination is, consequently, not really different from that of judgment.

The term *Reason* is sometimes used to designate intellectual activity exhibited in ratiocination, whilst *Understanding* commonly denotes intellect as exercised in the act of simple judgment. The faculty of reasoning, though it elevates us above the brute, is itself an imperfect attribute. The apprehension of truths by immediate intellectual intuition exhibits a higher grade of mental life than that shown in reaching them by long processes of discursive thought. Man possesses an intuitive insight of only a very few first truths. Far the greater part of his knowledge is reached by chains of inference from immediately apprehended truths. Consequently he is justly defined as *animal rationale,* not as *animal intellectuale.* The schoolmen styled angels or pure spirits "intelligences," and assigned to them *intuitive* cognition of numerous truths which we can reach, if at all, only by elaborate processes of observation and reasoning. Scholastic writers also distinguished the *Speculative* from the *Practical* reason. They did not, however, conceive these names to designate diverse *faculties,* but merely the same intellectual power under different aspects. Viewed as apprehending truth or reality, the intellect was termed *speculative,* as cognizing the relation of action to an end it was called *practical.* Conscience was thus described as an exercise of the *Practical Intellect* or *Practical Reason.*

BELIEF.—There has been much discussion since the time of Hume as to the nature and objects of *Belief.* This mental state has been variously assigned to the cognitional, emotional, and volitional aptitudes of the mind, and its sphere has been made to comprehend all forms of assurance, from trust in human or divine testimony to our convictions of the validity of primary truths. With the Scotch sceptic, who here, as elsewhere, saw more clearly and accepted more courageously than any of his followers the consequences of Sensism, all assertions, except those regarding purely ideal truths, are expressions of belief. Although we may be said to *know* that "equals added to equals give equals," and all propositions deduced from this, we can only be said to *believe* that *real* material objects exist. The principle of causality too, is not a *cognition*, but a *persuasion* or *belief*. Furthermore, when belief is analyzed, it is found according to Hume to consist in the "superior force or vivacity, or solidity, or firmness, or steadiness" of those ideas which are believed to be objectively valid. He sometimes speaks in a vague way of an element of "sentiment" forming the essence of belief, but he finally defines the latter act as "a lively idea related to or associated with a present impression." With my present vision of a distant tree there is associated a "lively idea" of tactual and other sensations; my belief in the reality of the object is merely the superior vivacity by which this "lively idea" surpasses the creations of fancy. This explanation is utterly inadequate. Independently of the fact that Hume characterizes as belief what should be properly described as knowledge, the resolution of belief into mere intensity of imagination is refuted by everyday experience. The scientist is assured of the existence of infinitesimal vibrations in an unimaginably elastic medium; and we all in fact believe in numberless objects of which we can form none or but the faintest ideas, whilst we hold to be unreal many things which the imagination represents with the greatest distinctness.

James Mill also calls cognition of external reality *belief*, and in a similar manner would reduce this mental act to an "inseparable" or "indissoluble association" between ideas. Belief in the events of to-morrow, in ghosts during darkness, in a real external world, and in my own past experience, are all merely instances of continuous association. A present impression irresistibly arouses another by association, and that *association* constitutes belief. Against this view may be urged two patent objections. First, the assenting act of the mind, in which the essence of belief consists, is confused with the *causes* of that assent. Though associations may *generate* belief, they are not thereby the belief itself. Secondly, in many cases where association has begotten a deception, the mind may discover its error and *disbelieve* in the illusion although the association remains, as in the case of the apparent fixity of the earth.

Dr. Bain formerly identified belief with *readiness to act*. He held that belief is "in its essential import related to Activity and Will," and that in fact it is merely a "growth or development of will under the pursuit of immediate ends."[3] More recently, however, he has abandoned the old view, and looks on the phenomenon as a fact or "incident of our intellectual nature, though dependent as to its force on our active and emotional tendencies."[4] The chief factors in its development are innate "spontaneity" and "primitive credulity." Dr. Bain's attempt merely adds to the list of failures. (1) Readiness to act may be sometimes, though it is not always, a *test* or indication of belief, but it is poor logic to confound the sign with the thing signified, or the effect with the cause. (2) Again, so far from its being a growth of our active volitional power, the essential feature of the act of belief is in many cases the passive or recipient attitude of the mind. (3) The analysis of belief into "primitive credulity" savours suspiciously of the vicious circle. For the sensist, who denies knowledge of aught except sensations, and who must logically reduce the external world to an aggregate of mental states, the problem here is to explain the act termed "belief," which is involved in external perception and memory, but absent from imagination. Now, to resolve *belief* into a group of elements including "primitive credulity," is to resolve it into a tendency *to believe too easily*, plus some other factors. This obviously is no real analysis. The simple truth is that the acquiescence of the mind in its own cognitions cannot be resolved into any simpler act.[5]

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[3] Cf. *Mental Science*, Bk. IV. c. viii (1st Edit.)

[4] Cf. Note appended to last edition of *Mental Science*; see also *Emotions and Will* (3rd Edit.), p. 536

In expounding our own doctrine on the subject of Belief we will secure clearness by separating three questions not always sufficiently distinguished. These are: (A) What are the *objects* of belief, or how is it demarcated from knowledge? (B) What are in general the mental *causes* or *conditions* which most influence belief? (C) What are the usual psychical *effects* and manifestations of belief?[6]

(A) In a very wide and vague sense of the word, *Belief* is made co-extensive with cognition. All knowledge is said to imply belief in its own validity, and it is for this reason that Hamilton would base the former on the latter. The term belief is also used to express the various degrees of assent, falling somewhat short of full certainty, with which the mind may adhere to a proposition; belief is here equivalent to a very probable opinion. Again, from time immemorial, this word has been used to denote the acceptance of a truth on testimony. Lastly, the term is also employed by psychologists to designate a large class of convictions in which our acquiescence may be so complete as to exclude all reasonable doubt, but which yet in ordinary language are frequently distinguished from knowledge. The chief assurances of this class would seem to be firm assents where the evidence, though sufficient to afford certitude, has not been analyzed or clearly realized in consciousness. Apart, therefore, from that inaccurate usage according to which we are described as *believing* axiomatic principles or that our knowledge is true, we find three classes of judgments in which the mental state is called belief. We are said to believe (1) that a penny will not turn up heads six times running; (2) that there were two revolutions in England during the seventeenth century; and also (3) such statements as that trains will run, that newspapers will be published, and that bridges will bear us up to-morrow. Regarding the first and second classes, there is no difficulty; probable opinions and trust in testimony may be rightly described as belief and easily distinguished from knowledge. The appropriateness of applying the term belief to the third class of assurances —a class roughly equivalent to what Cardinal Newman calls "simple assents" as opposed to "complex or reflex assents"—is not so clear. The principal objection to ranking these mental states as beliefs lies in the difficulty of determining how much formal analysis or conscious realization of the grounds of a conviction is necessary to constitute it a cognition. The chief justification for such a course is based on the obscure and indistinct manner in which the evidence is apprehended.

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[5] Mr. Sully rightly agrees with J. S. Mill, that *belief* is a primordial inexplicable fact, and adopts the final dictum of the latter philosopher, that in every analysis the belief "always returns on our hands as an ultimate postulate" (*Sensation and Intuition*, p. 80.) Nevertheless he seems at times (pp. 81, 87—91) to imply that some sort of dissolution into simpler ingredients is possible, and to consider the most primitive element to lie in the transition from sensation to phantasm.

[6] Professor Adamson, in his article on "Belief," *Encycl Brit* (9th Edit.) thus distinguishes the different problems, and makes some acute critical observations on the views of Hume and Dr. Bain.

Under *Knowledge* we would include (1) all truths of the necessary order seen to be immediately or mediately evident; (2) all truths of the physical or contingent order revealed in my own experience, whether as (*a*) facts of internal consciousness, (*b*) facts given in external perception, or (*c*) recollections of memory; (3) all truths explicitly inferred by logical reasoning from such known facts. Thus I *know* the mathematical axioms and all theorems which I have deduced from them by formal reasoning. I also *know* my own feelings. Further, matters-of-fact, objects and events in the external world disclosed to my own observation, my personal identity, and past experiences recollected by memory should be included within the sphere of *knowledge*. That I have an extended body, that my house contains two storeys, that I am the same being who opened Mill's *Logic* about two minutes since, are all matters of *cognition*. Lastly, I *know* all truths which I have consciously reasoned out from these more immediate cognitions. What is *knowledge* to one man may therefore be *belief* to another.

We do not wish to imply that such precision as this is or can be perfectly observed in everyday language. We merely seek to define a distinction vaguely felt, and confusedly indicated in ordinary modes of expression, but which point to real psychological differences. If we accept this delineation of the fields of *knowledge* and *belief*, or even if we confine belief to the two smaller classes—probable opinion and trust in memory—we see the motive for the frequent description of the one as *intelligent*, the other as comparatively *blind*, although both acts pertain to the intellect. Cognition requires that the truth assented to be mediately or immediately intrinsically evident. Belief, at least in the narrower sense, has for its object the inevident, or what is but extrinsically evident.[7] In the former state there is always full assent; in the latter acquiescence may at times be only partial. In the one case we are completely determined by the objective evidence or reality of the fact; in the other we may be largely governed by the subjective disposition of the soul. It is this element of truth which lies at the root of Hamilton's statement: "Knowledge and Belief differ not only in degree but in kind. Knowledge is a certainty founded upon insight; belief is certainty founded upon feeling. The one is perspicuous and objective, the other obscure and subjective." It is true that knowledge is eminently rational, whilst belief may be largely instinctive or emotional; still, possibility of error can at times be as securely excluded in states of mind justly called beliefs as in the clearest knowledge. Since, however, the essential feature in the mental state of belief is the admission by the *intellect* of some truth impressed upon it, those psychologists completely misread consciousness who ascribe this act to the voluntary faculties.

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[7] In scholastic language a truth is said to be *intrinsically* evident when by its own nature it enforces assent. It is *extrinsically* evident if necessarily acquiesced in by virtue of authority or testimony in its favour For a treatment of *evidence* as the criterion of certitude, cf. *First Principles of Knowledge*, c. xiii.

From this demarcation of knowledge and belief it will follow that truths transcending phenomenal experience, such as the existence and attributes of God, the nature of the soul, the reality of a future life, and the like, when demonstrated by strict logical reasoning from evident facts and principles, can be *known* as well as *believed*. The term *faith* is more especially employed to signify belief in supra-sensible things on the authority of Divine Revelation. Such supernatural belief requires, according to Catholic Theology, the co-operation of grace, and exceeds in both reliableness and dignity the avouchments of natural intelligence. Many truths first accepted on faith may of course be afterwards cognized as inferences of the reason.

(B) The *causes* or *principles* which determine or modify our beliefs are manifold. Whilst in the matter of cognition there obtains community in kind as regards the conditions of assent among normally developed minds, in the sphere of belief there are found the widest divergencies among individual dispositions. Our inherited character and acquired habits of thought have a large influence in predetermining our judgments, wherever the evidence is not completely decisive. But it is in the proximate conditions of belief that the psychologist is most interested. These may be classed as (1) Intellectual, (2) Emotional, (3) Volitional.

(1) *Intellectual factor.*—The most extensive and important class of beliefs are probably, as we have already suggested, those inferences drawn from premisses abundantly sufficient in themselves to warrant the conclusion, but not formally realized in consciousness. Special aptitude for rapid inferences from unobtrusive evidences of this sort, particularly in regard to the effect of our words upon others, is called *tact*. In addition to the intellectual element of quick appreciation, this term also implies the faculty of prompt and appropriate responsive action; for, fineness of touch refers not only to the discriminative capacity of the sense, but to its delicate efficiency in modifying the

materials handled. Where the evidence is not rigorously conclusive it still may render a particular alternative probable, and here intellect may be the chief determinant of the resulting belief. Other things equal, the force of our conviction tends to be in proportion to the weight of the evidence. Frequent repetition of contiguous experiences generates an expectation that the one will be in future followed by the other, and superior vividness of an idea often produces a belief in its objective reality; nevertheless we sometimes disbelieve in those phantasms which are most vivid, and contrariwise are convinced of the objective truth of faint ones.

(2) *Emotional* sources of belief cannot be completely separated from those described as *Intellectual*, since most emotions are based on intellectual representations. Still, there is a sufficiently well marked distinction for the purposes of our classification. Bound up with the social instinct, there is an innate impulse to trust human testimony. Children are proverbially credulous, and it is only a sad experience which unwillingly forces us to be chary of putting too great faith in our neighbour's word. Again—all emotions, especially those of hope and fear—which have the power of arousing in us a lively picture of any event, thereby tend to create a belief in its occurrence. Applied to our own actions this law is expressed in the axiom that "Beliefs tend to realize themselves." On the other hand sorrow, melancholy, and those feelings which depress psychical life produce despair and disbelief in the wished-for good, or a hopeless conviction of the coming ill.

(3) *Volitional Element.*—The effect of the Will on belief has always been recognized:

> The wish was father, Harry, to that thought,

is but the particular application of an adage far older than Shakespeare. The emphasis laid on the *merit* of Belief by all Christian teachers from St. Paul downwards, implies that assent is largely under the control of the Will. The forces modifying belief which have their root in the appetitive side of our nature may be classed as, (*a*) natural or indeliberate, and (*b*) volitional or deliberate. As regards (*a*), we naturally incline to believe what we desire.[8] We are convinced that our ideal heroes possess every virtue. We have, partly by character, partly by education and habit, become possessed of a number of cherished fancies on various subjects. Whatever conflicts with these, though the evidence in its favour be strong, we are impelled to distrust; what harmonizes with them, however improbable, we readily admit. We have called these beliefs indeliberate, inasmuch as they come into play without any positive effort on our part, but of course they may have serious responsibilities attached; and when in certain subjects reason declares that our beliefs or disbeliefs have been misplaced, we may be under a weighty obligation to assume the unpleasant task of uprooting the prejudice. (*b*) Belief is largely controllable by exercise of our Free-will. A change in our convictions cannot of course be at once effected by a single volition. But by deliberately fixing our attention on the arguments favourable to one side of a question and averting it from those on the other, we may in time come to completely adhere to what we at first discredited, or what is *in se* least probable.

(C) The *effects* of Belief are frequently, though not always, manifested in *movement*. Readiness to act is a common sign of conviction, ~~and this is probably the source of Dr. Bain's error on the subject.~~ Nevertheless, from many of our beliefs, it requires a very forced and artificial interpretation of consciousness to elicit any reference at all to action. Thus my belief that William the Conqueror invaded England A.D. 1066, or that there is hydrogen in the sun, or that I read a play of Shakespeare yesterday, contains no tendency to action that I can discover. On the other hand, the acceptance of depressing truths, instead of originating movement, often results in complete mental and bodily prostration. Still, in the larger number of cases belief is followed by action, and of course action must always presuppose belief in the reality of the environment. The active temperament is usually sanguine. The energetic man is not given to despair, but easily acquires confidence in new projects. Acting on mere opinions soon transforms them into steady convictions, which conversely strengthen the impulse to activity. "Courage is half the battle," expresses the psychological truth that confidence in our own prowess is eminently calculated to express itself in vigorous action.

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[8] It should be noted that intense desire of a particular event makes complete assent more difficult than when we are indifferent But on the other side it makes the abandonment of hope harder.

Reflexion on the remarks which we have just made ought to render clear the different standpoints of the logician and the psychologist in the treatment of mental phenomena. We have here sought to describe the nature of intellectual assent, and to discriminate it from other modes of consciousness. We have also endeavoured to analyze the causes which *de facto* originate or modify belief, and to exhibit its effects. The logician, on the other hand, investigates what are the grounds of *valid* belief. His aim is not to discover the *natural* laws or uniformities exhibited in the *genesis* of belief, but to formulate a code of *regulative* principles, rules, or precepts for the *proper guidance* of belief, so that it may be made to harmonize with reality.

Conscience.—The *Moral Faculty* is simply the Intellect directed towards the moral aspects of action, and hence styled the *Moral* or *Practical Reason*. It is not a different power from the *Speculative Intellect*. The terms Speculative and Practical qualify merely diverse exertions of the same faculty. By the former the mind discerns truth and falsity, by the latter the rightness and wrongness of conduct. An action viewed simply as a fact is the object of the intellect. The harmony, however, of such an act with human nature and its relation to a given end are but special accidental aspects of the same reality. Consequently, as St. Thomas argues, there is no reason why the rational faculty which apprehends the being of an act cannot consider its fitness for an end, its harmony with nature, or its moral rightness.

Two elements contained under the vague modern term Conscience are carefully distinguished by the schoolmen as *Synderesis* and *Conscientia*. They attributed both, however, to the same *ratio practica*. *Synderesis* denotes the innate *disposition* or *habit* by which we are enabled to rapidly and easily apprehend the primary precepts of the Moral Law, when the suitable experience occurs. Thus the practical maxims that "Right ought to be done," and that "Ingratitude is wrong," are intuitively perceived when observation has enabled us to comprehend the terms, with the same certainty as the speculative axiom that "Equals to the same are equal to each other," and the like. *Conscientia* is defined as the exercise of the Practical Intellect in applying the general precept to a particular case. It is, in fact, the cognitive activity exhibited in the ethical syllogism by which the moral quality of any act is determined—*e.g.* (*Major*) To relieve parents from suffering is right (Synderesis). (*Minor*) This act does so. *Ergo.* This act is right (Conscientia). This doctrine affords an easy solution of conflicting moral judgments. For even if the general principle is fully grasped, there may be error in its application; as when some barbarous tribes insert as minor in the above syllogism, "To kill parents in times of famine or sickness is to *relieve* them." Again, the special aptitude or disposition by which we are inclined to apprehend general moral axioms may be corrupted or perverted by education, tradition, evil passions, extreme intellectual and moral degradation due to climatic conditions or to the severity of surroundings, and the like.[9]

The chief hypotheses on the subject of moral cognition advanced during modern times are those of the Moral Sense, of Associationism, of Evolutionism, and the doctrine of Moral Reason, which is a return to the Scholastic view.

The theory of a *Moral Sense* was first advocated by

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[9] On *Synderesis* and *Conscientia*, cf. *Moral Philosophy* (present series), pp. 134—152. On the reconciliation of the conflict of moral judgments with Intuitional Morality, cf. Mivart, *Lessons from Nature*, c. v.; and D. Stewart, *On the Moral Powers*, Bk. II. c. 3.

Shaftesbury (1671—1713), and afterwards in a more decided form by Hutcheson (1694—1747). In this view, Conscience is conceived as a *Sense* analogous to that of taste or hearing. It is described as a special original aptitude of the mind capable of *feeling* the moral quality of actions, just as the tongue discerns the sweetness of sugar. Its perceptions, like those of our other senses, are accompanied with pain or pleasure according to the goodness or badness of the acts. The peculiar character of its object, the uniformity throughout the race of its decisions on the primary principles of morality, the promptness and ease with which they are uttered, and the early age of their appearance,—all these features point, it is urged, to the original and native character of the endowment. At times, however, defenders of the Moral Sense identify it with the instinct of Benevolence, with our Æsthetical Sensibility, or even with the Moral Reason proper.

Although the Moral Sense school was right in maintaining the unanalyzable nature of moral intuitions, their description of Conscience is open to grave objections. (1) The assumption of an additional new faculty is gratuitous. The intellect or reason which perceives the self-evident necessary truth that "Equals added to equals give equals," is the same power which cognizes the validity of the self-evident moral axiom that "We should do as we believe we ought to be done by.' (2) The representation of this special aptitude as a *sense* is highly objectionable. A sense is organic; it acts instinctively, blindly; it is essentially irrational. But moral judgments above all others claim to be the voice of reason, the revelation of the spiritual faculty of the soul. (3) A sense or instinct is essentially a subjective property or disposition Its cognitions are relative to the constitution of the organism. It pretends to no universal or absolute validity. Its action could conceivably be reversed by Almighty God. Animals might have been created to relish salt, dislike sugar, and so on. But moral perceptions are not acts of this kind; they, like the fundamental intellectual intuitions, disclose to us necessary, absolute, and universal truths which hold inviolable for God himself. (4) The formal object of a sense is, moreover, always a concrete individual fact. In relation to this object the sense operates invariably and infallibly, and it is not capable of transformation by education; but the moral relations expressed in the primary ethical principles do not partake of such a concrete individualistic character. In addition Conscience is subject to error and perversion, and it requires proper training to exercise its functions in a perfect manner. (5) Finally, the *authority* implied in the decisions of the Moral Faculty completely separates it from all forms of sensibility. An ethical sense might be the root of impulses to certain kinds of action, but it could neither impose nor disclose *obligation.*

Hume (1711—1776) verbally adopted the *Moral Sense* view, but resolved that power into two factors, *Reason* and *Sentiment.* Reason, which plays an inferior part, can possess no motive power, but only assists in ascertaining the useful or harmful consequences of different acts. The chief element, then, in Conscience is *Sentiment*[10] or *Feeling*, and this has its root in *Sympathy.* This latter principle Adam Smith (1723—1790) practically constituted the foundation of ethical distinctions, and the source of all moral approval or disapproval.

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[10] Confusion between the intellectual, emotional, and appetitive elements involved in the exercise of the Moral Faculty has been the cause of much error, and these factors should accordingly be carefully distinguished. *Moral Intuition* is the percipient act by which the truth of a self evident moral principle is immediately cognized. The name is also applied to the discernment of the moral quality of a *particular* action; perhaps this exertion of the Practical Intellect, as well as moral decisions based on longer processes of reasoning, may be best designated *Moral Judgment. Moral Sentiment* is not an ethical *cognition*, but the attendant *emotion*— the feeling of satisfaction or remorse, of approval or disapproval excited by the consideration of a good or bad action performed by myself or somebody else. The term *Moral Instinct* is employed to denote a *native* disposition towards some class of socially useful acts, *e.g.* gratitude, generosity, &c. Such *natural* indeliberate tendencies do certainly exist, but they are not truly *moral* any more than the sympathetic impulses of brutes. It is only when approved by reason and consented to by will that they become moral in the strict sense of the word. *Moral Habits*, that is, dispositions acquired by intelligent free exercise, are moral in the fullest sense.

The chief attack, however, on the *Moral Sense* doctrine came from the disciples of Hartley and Bentham. The Sensationist school necessarily adopted utility as the foundation of morality, and sought to resolve moral distinctions into feelings of pleasure and pain. Conscience, it is held, is not a simple original faculty, but a complex product derived from experience of the agreeable and disagreeable results of actions. The child is trained up to obedience, and the idea of external authority is formed in its mind. Certain acts are associated with punishments, others with rewards. Affection towards the person of the superior, social sympathy and reverence for law, as well as fear of retaliation and enlightened prudence, all gradually amalgamate to produce that indefinite mysterious feeling attached to the acts of the moral faculty. The essential constituents of conscience are, therefore, the faint traces of pleasurable and painful consequences which have been associated in past experience with particular kinds of action.

The objections to this theory are numerous: (1) It does not account for the very early age at which moral judgments are formed, nor for the ease and readiness with which they are elicited before any proper estimate of the utility of various classes of acts can be attained. The child is able, while still very young, to distinguish between *just* and *unjust* punishment, and thus to apply a moral criterion to the very machinery by which its moral notions are supposed to be manufactured. (2) The Utilitarian hypothesis again does not account for the *absolute authority* attributed to moral decisions by the fully developed human mind. (3) Nor does it explain the peculiar *sanctity* attached to moral precepts. Mere experiences of utility, mere impulses towards pleasure or from pain would never generate the axiom, *Fiat justitia ruat cœlum.* (4) It does not account for the universality of this reverence in regard to at least some moral distinctions; nor for the universality of ethical notions exhibited in terms to be discovered in every language, and found in the customs, laws, and religions of all nations. In spite of wide diversities of opinion as to *what* is right, there is the unanimous conviction that *right ought to be done.* (5) Again, the notions of duty and utility are not merely radically different, but often stand in opposition. If apparent self-sacrifice is seen to be designed for gain, its virtue disappears. (6) Logically followed out, this theory, by destroying the *authority*[11] of conscience, annihilates morality in the proper sense of a code of absolute laws which prescribe the observance of certain intrinsic distinctions of human action. (6) As a final proof of the utter inadequacy of association and personal experiences of pleasure and pain to generate conscience, it may be noted that since the Evolutionist hypothesis has been invented, the representatives of Sensism, almost to a man, admit that the theory maintained so confidently by their school twenty years ago is completely insufficient to meet the case.

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[11] It has been maintained that the *character* of the *moral faculty* is in no way affected by its *genesis*. Dr. Sidgwick justly holds that the *existence*, *origin*, and *validity* of moral cognitions are three distinct questions; but he errs in teaching that the two last are completely independent of each other. He asserts (*a*) that the *validity* of any cognition is not weakened by its late appearance in life; (*b*) that the mere derivation of moral perceptions from simpler elements cannot render them *untrustworthy*, nor their innate character establish their infallibility; (*c*) that consequently Ethical science is no more concerned with the *origin* of Conscience than Geometry with that of Spatial Perception. (*Methods*, Bk III. c. i. § 4, and *Mind*, 1876, pp. 52, 53.) This doctrine draws its chief plausibility from an ambiguity contained in the words "validity" and "trustworthiness." These terms as predicated of intellectual cognition mean that the perception in question agrees with an objective fact universally admitted. As applied to moral cognition, they mean that the judgments of conscience possess *authority*. They signify that these acts (*α*) reveal to us *law* of a *transcendent* and *sacred* character, and (*β*) thereby impose on us an *obligation* to special kinds of action or abstinence, (*γ*) *independent* of *pleasurable* and *painful consequences*. Obviously then (1) the essence of genuine analogy with mathematical knowledge is wanting. (2) The vital objection is not to the late date assigned to the appearance of moral notions, but to the materials out of which they are supposed to be manufactured. (3) The real question is, whether the *supremacy* and *holiness* claimed for the deliverances of conscience are justified by genuinely objective moral distinctions, or are merely illusory products containing only sensational and emotional elements of a non-moral kind. If the latter alternative be true, their pretended sovereignty is obviously but an illegitimate usurpation. If, as Dr Martineau puts it, "the conscience is but the dressed dish of some fine *cuisine*, if you can actually exhibit it simmering in the saucepan of pleasure and pain, the decorous shape into which it sets ere it appears at table, cannot alter its nature or make it more than its ingredients." (*Types*, Vol. II. p. 14.) Similarly, from the opposite standpoint of Physical Ethics, Mr. Barratt attacks Mr. Sidgwick's view (Cf. *Mind*, 1877, pp. 169—172), urging that the pretensions put forward on behalf of conscience are very different from those of the spatial faculty, and that the ultimate grounds of Morality are disputed, while those of Mathematics are agreed upon.

The Evolutionist doctrine of the *Moral Faculty* varies from that just described merely by enlarging the period during which the pleasurable and painful consequences of conduct have been at work, so as to include not the life of the individual only, but also that of the race. Conscience is a species of instinct analogous to the *retrieving disposition* in a well-bred game dog. It embodies the experiences of pleasure and pain felt during the numberless ages of the gradual evolution of man. These, it is asserted, have been by degrees organized and accumulated through Natural Selection, and transmitted by heredity from parent to offspring in the form of physiological modifications. The theory thus claims to reconcile the *Moral Sense* doctrine with that of the Benthamite school, or at all events to combine the elements of truth supposed to be contained in both. On the one hand, it recognizes the native or instinctive character of moral intuitions and sentiments, whilst on the other it ultimately bases all moral distinctions on the pleasurable and painful consequences of action, and teaches that Conscience is a complex product derived from these latter.

As this account of the Moral Faculty forms part of the general theory of the Origin of Necessary Truth advocated by Evolutionist Psychology, we refer the reader back to our discussion of the wider subject. Here, however, we may observe in addition: (1) that the new hypothesis is exposed to all the most weighty objections advanced against the old Associationist doctrine, except that based on the readiness with which moral cognitions are elicited, and the early age at which they appear; (2) that moral intuition is not of the nature of a sensitive instinct, but of an intelligent apprehension; (3) finally, that Conscience or ethical notions are the most unlikely product that can well be conceived to arise by Natural Selection. Even in tolerably civilized stages of society, the utility of moral sensibility to the individual in the *struggle for life* is very problematical. *A fortiori* amid the internecine war and conflict of the supposed pre-human stage, where, in the words of Hobbes, "fraud and force" are the "cardinal virtues," the chances should be enormously against the development of self-sacrifice.

The fact that within a tribe or nation some of the moral virtues are of evident advantage in the struggle with other tribes makes no real difference, unless we assume, against the whole teaching of evolution, the sudden causeless appearance of the moral instinct throughout the majority of the individuals of the tribe. If "the weakest to the wall" is the one supreme Law of Nature, if Natural Selection is the great force of evolution, then the occasional individuals varying slightly in the direction of conscientiousness would be inevitably eliminated in the perpetual struggle for existence within the limits of their own savage tribe, before the dubious utility of their incipient moral dispositions could be extended to the tribe as a whole, and render it superior to other less moral races.[12] If an unprejudiced mind considers how intensely difficult it is, even at the present day, when we are in possession of all the moralizing agencies of religion, education, language, literature, public opinion, and governmental authority, to quicken the moral sensibility of the individual or of the nation, he must surely see that in the alleged pre-human stage, when not a single one of these forces were present, and when the conditions of existence combined unanimously in the opposite direction,[13] the natural growth of conscience must have been absolutely impossible.

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[12] Dr. Bain forcibly argues that "the Moral Sentiment is about the least favourably situated of all mental products for transmission by inheritance." The chief grounds on which he does so are: (1) *Comparative infrequency* of special classes of moral acts. "We are moralists only at long intervals, . . . we may be hours and days without any marked moral lesson" (2) *Complexity*. "The moral sentiment supposes a complicated situation between human beings apart from whom it has neither substance nor form." (*i.e.* in the Utilitarian system) (3) *Disagreeableness* of duty. "We do not readily acquire what we dislike. . . . mankind being naturally indisposed to self-denial are on that account slow in learning good Moral habits, and are not generally in an advanced state even at the last." (*Emotions and Will*, 3rd Edit pp. 55—57.)

Writers of the Intuitionalist school subsequent to Shaftesbury and Hutcheson modified the doctrine of the Moral Sense, so as to remove its most obvious defects. Thus Reid and Stewart, who accept the term, describe the faculty as of a *rational* character. It is a special innate power, given at first only in germ and requiring training and cultivation, but nevertheless capable of revealing the objective moral qualities of actions. The term *Moral Sense*, however, has been used in such a variety of significations, and is so liable to suggest an erroneous view of the nature of moral perception, that we believe Conscience will be best described as the Moral or Practical Reason. It should always be borne in mind that while on the one hand the moral faculty is a cognitive power identical with the intellect, its proper object differs in kind from mathematical relations and purely speculative truths.[14]

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[13] Whether honesty is or is not the best policy, Mr Lecky has justly observed, depends mainly on the efficiency of the police. Misleading and objectionable in many respects as is that writer's *History of European Morals*, he has demonstrated with great force and clearness the impossibility of deriving moral notions from utility in any state of society (Cf. pp. 43—77.) Moreover, even such a thorough-going evolutionist as Mr. Wallace holds that whatever might possibly be the utility of duty to the race its *sanctity* could never be thus accounted for. (*On Natural Selection*, pp. 352—355, cf also Mivart, *Lessons from Nature*, c. v.)

[14] The confusion prevalent in modern ethical speculation regarding the connexion between Conscience, Reason, Intellect, and Moral Sentiment has given rise to a warm dispute as to whether Reason can be a *spring of action*. Cudworth (1617—88) and Clarke (1675—1729), the ultra-intellectual moralists, identified the moral faculty with Reason in its narrowest sense, assimilating the activity of Conscience to the cognition of purely speculative truths. Inter-

Kant, indeed, identified Conscience with the Practical or Moral Reason. It was, however, conceived by him not as a cognitive faculty making known to us an external law prescribed from without, but as an internal regulative force which itself imposes commands on the will. Man is thus asserted to be *a law to himself*. This doctrine, based on the so-called *autonomy of the reason*, confounds the function of promulgating a law with the office of legislation, and gives a defective account of the nature of authority and of the ultimate grounds of obligation. For a treatment of this subject we must refer the reader to the volume on *Moral Philosophy* of the present series.[15]

Among English moralists of last century the ablest defender of the authority and rationality of Conscience, and the writer who returned most closely

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preting Reason in this restricted signification, Hume argued that it can have no influence over the will, and therefore is not a spring of action. He, consequently, assigned to *sentiment* the chief place in the constitution of the moral faculty. Later philosophers, wishing to defend the rationality of morality, opposed this view. Dr. Sidgwick thus argues: (1) The chief part of moral persuasion appeals to Reason. (2) "Reason prescribes an *end*." The judgment, "This ought to be done," stimulates the will to action. The moral sentiment may co-operate, but the cognition of *rightness* of itself really impels to action (*Methods*, Bk. I. c. iii. § 1.) Dr. Martineau, on the other hand, defining a *spring of action* as "an impulse to an unselected form of action," excludes both Prudence and Conscience from the list of active forces. Moral Reason merely decides which of two rival impulses is the *higher*, which is to be *preferred*. It is a "judge" not an "advocate." The motive power lies solely in the impulses themselves There is an element of truth contained in both views, and the dispute seems to us to be in part verbal. *Moral perception* is an act of the Reason, and this is in itself a *cognitive*, not a *motive* or *appetitive* faculty. It is primarily recipient, not impulsive On the other hand, in apprehending an action as *right*, *obligatory*, *agreeable*, or *useful*, the intellect stimulates the will to action, and thereby becomes a motive agency. The propelling force thus lies primarily in the quality of the *object* apprehended, and not in the intuition viewed merely as a *conscious state*. A spring of action is thus a mental state *tending of itself* to issue into action, while an ethical cognition in virtue of the objective moral law which it reveals is an apprehensive act which may originate or check such an impulsive state.

[15] Cf. Pt I c vii

to the teaching of St. Thomas and the great Catholic philosophers of the middle ages, was Butler (1692—1757). The attention which had been devoted to the empirical study of the mind by his immediate predecessors, however, caused him to lay great stress on inductive arguments. And we believe we may suitably close the present chapter with a passage of his, which admirably epitomizes the psychological grounds by which the existence of genuinely moral intuitions are established: "That which renders beings capable of moral government is their having a moral nature, and moral faculties of perception and of action. Brute creatures are impressed and actuated by various instincts and propensities: so also are we. But additional to this we have a capacity for reflecting upon actions and characters, and making them an object to our thought; and on doing this we naturally and unavoidably approve some actions, under the peculiar view of their being virtuous and of good desert, and disapprove others as vicious and of ill desert. That we have this moral approving and disapproving faculty is certain from our experiencing it in ourselves, and recognizing it in each other. It appears from our exercising it unavoidably, in the approbation and disapprobation of even feigned characters: from the words right and wrong, odious and amiable, base and worthy, with many others of like signification in all languages applied to actions and characters: from many written systems of morals which suppose it, since it cannot be imagined that all these authors, throughout all these treatises, had absolutely no meaning at all to their words, or a meaning merely chimerical: from our natural sense of gratitude, which implies a distinction between merely being the instrument of good and intending it: from the like distinction every one makes between injury and mere harm, which, Hobbes says, is peculiar to mankind; and between injury and just punishment, a distinction plainly natural, prior to the consideration of human laws. It is manifest, great part of common language and of common behaviour over the world is formed upon supposition of such a moral faculty, whether called conscience, moral reason, moral sense, or Divine reason,—whether considered as a sentiment of the understanding, or as a perception of the heart;[16] or, which seems the truth, as including both. Nor is it at all doubtful in the general, what course of action this faculty, or practical discerning power within us, approves, and what it disapproves. For, as much as it has been disputed wherein virtue consists, or whatever ground for doubt there may be about particulars, yet, in general, there is in reality a universally acknowledged standard of it. It is that which all ages and all countries have made profession of in public: it is that which every man you meet puts on the show of: it is that which the primary and fundamental laws of all civil constitutions over the face of the earth make it their business and endeavour to enforce the practice of upon mankind, namely, justice, veracity, and regard to the common good."[17]

Readings.—On Judgment and Reasoning, cf. St. Thomas, *Sum.* i. q. 79. a 8; Suarez, *De Anima*, III. c. 6; *First Principles* (present series), Pt. I. c. ii., Kleutgen, op cit. §§ 133—146, *Logic* (present series), Pt. II. c. iii. On Belief, *First Principles*, Pt. II. cc vii viii. On Conscience, St Thomas, *Sum.* i q. 79. a. 9—13; *Moral Philosophy* (present series), Pt. I. c. viii. §§ 1, 2; Mivart, *On Truth*, pp 243—255.

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[16] There is frequent want of precision in Butler's use of terms; here obviously the position of the words "sentiment" and "perception" should be reversed

[1] Cf. *Dissertation on the Nature of Virtue*, subjoined to the *Analogy*

CHAPTER XVII.

INTELLECTUAL ATTENTION, REFLEXION, SELF, AND OTHER IMPORTANT IDEAS.

We have already spoken of the intellectual activity called *Attention* in chapter xiii. However, in our treatment there of this form of consciousness, we had exclusively in view the proof of the spiritual nature of the faculty of Intellect. We will now study this mental state for its own sake, endeavouring to ascertain its most general features and the laws of its operations.

Attention.—We have distinguished Attention in the strict signification of the word from mere increase in the force of feeling, and we have described it as the special application of cognitive energy to some object presented to the mind. Although in establishing the supra-sensuous character of the activity we have dwelt chiefly on that form of it which is the result of positive volition, nevertheless, at times its action may be indeliberate or involuntary. Interest may be aroused and intellectual observation attracted, not only without any effort on our part, but occasionally in spite of our most vigorous endeavours. This second form of attention is termed *involuntary* or *automatic.* Its direction and force are determined by the attractiveness of the object.

In *Voluntary* Attention, on the other hand, the regulating principle is within the mind. It is in this operation the power of Free-will is most clearly exhibited. We are conscious that we ourselves now and then interfere with the natural automatic current of our ideas, and guide them in a new line. This voluntary control of attention is itself limited. A representation of the imagination, an internal emotion, an agreeable train of thought, or a powerful external stimulus may at times render nugatory our most vigorous exertions to apply our mind to some other subject. It is, however, the experience of this very limit to the control of our thoughts which enables us to have the most complete assurance of our freedom within this boundary. The conditions determining Voluntary Attention are accordingly two-fold; on the one side the superior or inferior degree of attractiveness possessed by the object, and on the other the quantity of energy possessed by the mind at the time. This latter factor is again partly dependent on the state of the organism.

These general conditions have been described by some psychologists as *Laws of Attention,* and they may be thus briefly formulated: (1) *Involuntary, Automatic,* or *Reflex Attention is determined as regards both its force and direction, by the comparative attractiveness of the objects present to the mind.* This attractiveness depends partly on the intensity, partly on the novelty. pleasantness, painfulness. and the various other qualities which give interest to the presentation. (2) *Voluntary Attention is determined* (*a*) *by the energy of the mind at the time*, (*b*) *by the inherent attractiveness of the object*, and (*c*) *by extrinsic motives or relations of the object which may influence the will.* Thus the student's power of keeping his intellect fixed upon his work depends on the nature of the subject, on the intensity of his desire to pass his examination, on the fresh or fatigued state of his brain, on his acquired habits of steady concentration, and also on the vigour of the volitional effort he puts forth at the time. Another law expressing the relation between the *extent* and *intensity* of attention is formulated in the old aphorism: (3) *Pluribus intentus minor est ad singula sensus*, or, *The intensity of attention varies inversely as the area or extent of the objects over which it ranges.* Strictly speaking this statement defines, not the force of a single act of attention, but the general efficiency of mental exercise during a longer or shorter period.

Whether we can or cannot attend simultaneously to a multiplicity of objects has been disputed; as a matter of fact we rarely do so, but rather pass rapidly from one to the other. We may indeed be at the same instant sensuously conscious of sounds, colours, temperature, pressure, and various other experiences, but careful introspection will show that our intellectual attention is directed to these groups of phenomena in succession. Consequently, the more numerous the objects to be noted, the shorter is the time to be given to each, and the less profound is the impression.

It is thus inaccurate to look upon an act of attention as merely narrowing more or less the area of consciousness, and thereby intensifying its force after the manner of a lens, which, according to its position, converges a number of rays of light within the circumference of a smaller or larger circle. Attention is a supplementary act of a higher order than the sensations which it presupposes. The direction of attention towards an external object increases our sensibility in regard to that object, and causes it to make a deeper mark in the mind. Similarly, attention may strengthen the force of an emotion, a desire, or an image of the fancy; while by averting our intellectual gaze from such states we gradually reduce their power. It is thus indirectly by modifying the power of motives that we usually exert our moral freedom in the practice of self-control. By fixing our view on attractive aspects and diverting it from others, we can secure the prevalence of the former. At times, under the pressure of some violent temptation, such as the desire of revenge, the soul may be so overpowered that a complete repudiation of the suggestion is not immediately possible. By suspending action, however, and turning our mind away from the irritating cause and fixing it on considerations moving to charity or forgiveness, the force of the angry impulse is gradually extinguished and self-command regained. Still, although it is by this indirect reinforcement of motives that we often make most important use of our moral liberty, it should not be forgotten that the suspension of action and the selective act of attention are both due to the free exertion of the will.

Besides deepening the force of an actual impression, attention clarifies its relations. Both effects, but especially the former, are of the greatest utility in accelerating and giving permanence to intellectual *acquisition*. Twenty repetitions of a lesson, or twenty experiences of a fact when the mind is in a careless condition, have not the efficiency of a single observation with our whole cognitional energy concentrated on the subject in hand. The illuminating power of attention by which the obscure and scarcely discernible relations of an object of thought are brought into vivid consciousness, is the great parent of *invention* and *discovery*. By continued fixation of our intellectual gaze upon an object its connexions with its surroundings are clearly apprehended, possible explanations of particular features are suggested, and their validity is verified or disproved by reasoning out the consequences. The importance of this faculty in original work of all kinds is so great that in many celebrated definitions we find *genius* and *attention* made synonymous with each other.[1] Although the absolute identification of the two endowments is an error, yet the connexion is so intimate that we believe no man not possessed of high powers of concentration has exhibited conspicuous excellence in any intellectual sphere.[2]

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[1] "The difference between an ordinary mind and the mind of a Newton, consists principally in this, that the one is capable of the application of a more continuous attention than the other." (Hamilton, *Metaph.* Vol. I. p. 256.) Helvetius defined genius as "nothing but continued attention"—*une attention suivie;* Buffon as *une longue patience*. Similarly Cuvier. Newton himself ascribed his own success to patient attention more than to any other talent. The definition of genius by one of our most vigorous modern writers as "an infinite capacity of taking pains" is well known.

XVII

REFLEXION AND SELF-CONSCIOUSNESS.—*Attention* and *Reflexion* have been sometimes contrasted as the direction of cognitive energy *outwards* and *inwards*. The two terms may be thus conveniently distinguished for some purposes, but it should be remembered that they really denote, not separate powers, but diverse activities of the same intellectual faculty. Reflexion is nothing else than Attention directed to our own states, and this operation constitutes the exercise of *Self-consciousness*. Self-consciousness may be defined as ***the knowledge which the mind has of its acts as its own.***

We can discern different forms which the reference of a state to a self assumes in the several stages of mental life. In the merely sentient existence of the infant or brute animal, there is no cognition of a *self;* there is only consciousness of sensations, emotions, and impulses. Yet these cannot be felt as states without a subject, or as states of no subject. Animals are pained or pleased, miserable or satisfied; and this can only be because the pain or pleasure felt is theirs, and is felt by them. The sentient being is conscious that it is pained; but it does not in any way distinguish between the pain as a state and itself as a subject of that state. It feels the state to be its own, yet never formally cognizes it *as its own.*

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[2] A good deal has been written about the physiological *basis* of attention, but beyond those general physical concomitants which distinguish the organic conditions of attention from those of *insouciance* nothing is certain (Cf. Ladd, op cit pp. 538, 542.) The consciousness of strain, and afterwards of fatigue, which appertains to energetic attention, appears to show that part of the neural accompaniments consists in an innervation of the motor centres, and a transmission of energy thence to the portions of the organism chiefly concerned in the excitation of the mental state attended to As the external attitude expressive of attention, for instance, in listening, involves muscular contraction, it seems certain that there is some form of excitation of the motor nerves Dr. Carpenter conceives the cerebral condition of increased mental activity to be a *hyperæmnia*, or exuberant confluence of blood, in the special centres engaged in the particular experience. This *hyperæmnia* causes an augmented tension of the nerve-centres, and so renders them abnormally sensitive. (Cf. *Mental Physiology*, pp 380—385.) These physical changes are, however, rather the *effects* of the act of attention than the *cause* or neural correlate of that act *itself*.

When, however, we reach the grade of intellectual life we meet with a distinctly new fact, one immeasurably transcending all phenomena previously observed in the universe. We find an agent which not only is, acts, and feels, but which knows that it is, which is aware that it is the cause of its acts, and which recognizes that its feelings are its own, though not itself. This rational self-consciousness may take either a more or a less developed form. It may be manifested as a concomitant of a direct act, or it may be the result of a deliberate and explicitly reflex operation in which the cognitive energy of the soul is turned back on itself.

That the mind in many of its modifications is simultaneously conscious of these states as its own, must be admitted by every one who occasionally practises a little introspection.[3] We do

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[3] The question has been raised, are there *any* "latent mental modifications"—processes or energies of the mind of which we are completely unconscious That there are at times conscious states not apprehended by the explicitly reflex activity of *self*-conscious-

not say that the *Ego* is obtruded upon us in *all* our experiences. Frequently, when our interest is keenly excited by an external object, or when we are under the influence of strong emotions, the Self passes completely out of notice. Nevertheless,

ness is of course undeniable. Moreover, latent modifications must be admitted: (*a*) as dispositions, habits, or *species impressæ* to account for memory and our ordinary knowledge; and (*b*) still more to account for the reproduction in dreams and delirium, of forgotten languages, and long lost recollections. For the existence of latent modifications in the form of *actual* energies or processes below the surface of consciousness Hamilton argues: (1) The reality of *minima visibilia audibilia*, &c.—the fact that our sensations of sight, sound, and the rest are made up of an aggregate of elementary states excited by combinations of stimuli which are separately unperceivable. Thus the leaves of the forest, individually indiscernible, each contribute to the general presentation of colour. (2) The effects of unconscious trains of thought by which sudden reminiscences or discoveries are presented to the mind without the intervening links being apprehended. On the other side it is argued: (1) That a conscious state made up out of units of unconsciousness is unthinkable, and that the facts of sensation indicated merely show that the neural or organic stimulation must reach a certain degree of intensity to awaken mental life at all. (2) That sudden reminiscences, discoveries, and the like, apparently resulting from the unconscious working of association, may be due to unconscious *cerebration*. Thus, it is supposed that neural processes in the brain being once set in motion may run their course unconsciously, till the cerebral situation arises which forms the appropriate condition for the final mental act. Or, it may be held that the intermediate *mental* links do actually appear in consciousness, but are too fleeting and transient, like the perceptions of the separate letters of a printed page, to be remembered. (Cf Hamilton, *Metaph.* Vol I pp. 338, seq ; Dr Carpenter, *Mental Physiology*, c xiii. ; Mill, *Exam* c. xv.) The scholastic writers who have treated the subject at greatest length are Sanseverino (*Dynam.* pp 944—982) and Gutberlet. The latter writer argues in favour of the existence of unconscious *sensations*, but against unconscious *perceptions*. (Cf. *Die Psychologie*, pp. 49—59, 166, seq) If we define a mental modification as a "state of consciousness," then of course it cannot be unconscious. So much of the dispute regards verbal propriety Philosophically, however, we see no sufficient reason for denying, either in the vegetative, sensuous, or spiritual grades of life, the existence of energies or processes of the soul which do not themselves rise into consciousness. The conception of the activity of the *intellectus agens* and the *potentia vegetativa* in the Aristotelian Philosophy appear to us quite in harmony with the doctrine of *latent energies*.

all such conscious states are *my* states, the mind is really present in them, and its presence is clearly revealed to me, if I make an act of reflexion. But independently of this reflexive exertion, the soul in its normal operations cognizes itself. Concomitantly with our perceptions, comparisons, and reasonings, and antecedently to any retrospective observation, there is given a consciousness of self. In acts of the Will especially is this the case. We are in the very act of volition concurrently aware that it is *ours*, and that it is freely elicited *by us*. This direct consciousness which the mind has of itself in its acts was clearly apprehended and accurately expressed by St. Thomas.[4]

Nevertheless, it is in the deliberately reflex act of self-consciousness that a perfect knowledge of self and of states as distinct from self is reached. Not only is the mind percipient of self in volitions and perceptions, but it can afterwards by a retrospective effort distinguish between the state and itself as subject of that state. I am, for instance, balancing the rival attractions of a cricket match and a day's fishing. Whilst the process of deliberation continues I am aware that it is *I* who think, but I do not explicitly distinguish between myself and the thought. A little later, however, I set myself to reflect upon this piece of thinking, and I at once discriminate between the operation and the agent.

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[4] "Quantum igitur ad actualem cognitionem qua aliquis considerat se in actu animam habere, sic dico quod anima cognoscitur per actus suos. In hoc enim aliquis percipit se animam habere et vivere et esse, quod percipit se sentire et intelligere et alia hujusmodi vitæ opera exercere." (*De Verit*, q. 10, a. 8.)

I recollect that the former came into existence about five minutes ago. I remember the motives on each side which in turn influenced me, the representations of former pleasures which rose up before my mind, and the calculations as to the weather and as to possible future opportunities which occupied me. These series of states succeeded each other, and the last of the original set has now ceased. But though the phenomena have passed away, the subject of them all has remained.

The act of reflexive observation brings out into the most vivid contrast the distinction between this abiding principle and its evanescent modifications; at the same time it assures us of the real sameness of that principle with a clearness and certainty not exceeded by our conviction of the existence of the transitory states themselves. I am absolutely and irresistibly convinced that the mind is a permanent something which has persisted the same through the succession of impressions of which it is the substratum. Finally, in the exercise of this introspective study, I apprehend the perfect identity of the *Ego* who is reflecting with the object of this study and with the subject of these states. This constitute the last and highest grade in the activity of self-consciousness, and is possible only to a spiritual intellect. No faculty exerted by means of a bodily organ can elicit an act of which the subject and object are the same. Nothing material can act upon itself, reflect upon itself, or know itself.

This stage of self-knowledge is probably not reached by the child until its mind has attained to a considerable degree of development. The infant at first lives the life of the merely sentient animal, even the topography of its own physical organism being but gradually ascertained. However, as its experience extends, and as its mental faculties ripen, memory comes into play; and, although the attitude of its mind is still mainly objective, consciousness of a Self present in its various states becomes more and more completely awakened into life. As the thoughts of pleasures and pains repeated in the past and expected in the future grow more distinct, the difference between these and the permanent abiding Self comes to be fully realized. Passing emotions of fear, anger, pride, or sympathy, the sense of power to resist and overcome rising passion, and the nascent consciousness of responsibility prepare effectually the way for the final revelation, and at last in some conflict between rival impulses,[5] in some reflex act of memory, or in some vague effort to understand the oral "I," the great truth is manifested to him, and the child is henceforth a Self-conscious Person.

Self-consciousness, whether of the direct or reflexive order, immediately discloses to us only the *existence* of the mind in our various operations. It does not at once reveal to us its *inner nature.* This latter question is the goal of the science of Psychology. Here again St. Thomas clearly apprehended and distinguished between the two problems.[6] We should also carefully discriminate between our personal identity and our knowledge of it. Self-consciousness presupposes the abiding existence of the person who is self-conscious, but it does not constitute his personal identity: this has its basis in the persistence of the same indivisible soul throughout the life of each individual.[7]

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[5] J. F. Ferrier, who dwelt more on the metaphysical importance of self-consciousness than any other British philosophical writer, ascribes a leading part to the exercise of *free-will* in the cognition of our personality (Cf. *Introd to the Philos of Consciousness*, Pt. V)

Self as disclosed in the activity of self-consciousness has, since Kant, been frequently styled the *phenomenal Ego,* to differentiate it from a supposed *noumenal Ego,*—the Ego as it is *in itself* lying beyond the range of cognition. The phrase is very unhappy. Even granting that the Kantian distinction between *noumenon* and *phenomenon* were valid as regards the objects of the external world, it is only by profoundly misinterpreting the nature of the knowledge of the Ego given in self-consciousness, that such a distinction could be extended to the mind. A *phenomenon* is the appearance which an object presents to the mind from without. The external thing is known by the mind through means of a state or modification which might conceivably mislead us as to the nature of its cause. On the other hand, the Ego revealed in self-consciousness is perceived from within, or rather it perceives itself. The subject and object are one. The soul knows itself *in* its own exertions. There is no place for appearances or phenomena at all; it is really present to itself. It is conceivable that knowledge of external material things by *species* or mental modifications might be illusory, but in the minds' awareness of its real presence in its own acts there is no room for error.[8]

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[6] "Ad primam cognitionem de mente habendam sufficit ipsa mentis præsentia, quæ est principium actus, ex quo mens percipit se-ipsam; et ideo dicitur se cognoscere per suam præsentiam. Sed ad secundam cognitionem de mente habendam non sufficit ejus præsentia; sed requiritur diligens et subtilis inquisitio: unde et multi naturam animæ ignorant, et multi circa naturam animæ erraverunt." (*Sum* i. q. 87. a. 1.)

[7] Locke's definition of a Person as *a self-conscious substance,* is therefore inaccurate. In this view a child or a sleeping man would not be a person at all, and an interruption of the continuity of consciousness should break up the personality of the individual. Ferrier's language is also exaggerated when he asserts that "a being *makes* itself I by *thinking* itself I," and that "self-consciousness *creates* the Ego." Memory and self-consciousness *reveal,* but they do not *constitute* personal identity. The true definition of a person is that of Boethius—*an individual substance of a rational nature.*

ASSOCIATIONIST VIEW OF SELF. FORMATION OF OTHER IMPORTANT IDEAS.—The Empirical school, reducing all reality to a succession of transitory feelings, is of course logically forced to deny the presence of an abiding mind persisting the same amid varying states. The idea of a permanent self, Hume argues, is not derived from any sensuous *impression*, therefore it is a "fiction" of the imagination, for, on Sensist principles, the only ideas which can pretend to any validity are those derived from *impressions:* "I venture to affirm of the rest of mankind that they are nothing but a bundle or collection of different perceptions which succeed each other with an inconceivable rapidity and are in a perpetual flux and movement. The mind is a kind of theatre where several perceptions successively make their appearance. . . . There is properly no simplicity in it at one time, nor identity in different; whatever natural propension we may have to imagine that simplicity and identity. The comparison of the theatre must not mislead us, they are the successive

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[8] Lotze has effectively defended the genuine unity and identity of the mind against Kant, not merely on the ground that it *appears* to itself as a unity, but on the ground of its appearing to itself *at all* Even if it seemed to itself to be a multiplicity we would be compelled to look on it as really a unity. (*Metaph.* § 244)

perceptions only that constitute the mind."[9] Hume is the frankest, as well as the ablest representative of Sensism, but Mill, Dr. Bain, and all leading members of the school accept this doctrine as the inevitable outcome of their principles; and they are unanimously agreed that the mind is nothing more than a succession of conscious states.

Now, this being on all hands allowed, we contend that Sensationism stands disproved. We do not know in the whole history of Philosophy, nay we cannot even conceive of any confutation more complete and decided being made out against a metaphysical system, than the *reductio ad absurdum* exhibited in this deduction from the Empiricist assumptions. If the intuitionist or dogmatist were forced to admit such a doctrine as this, the eloquence and sarcasm of his opponents would be plentifully poured forth. The blind prejudice of men claiming to be scientific inquirers, who yet shut their eyes to an obviously fatal flaw in this their theory would be dwelt upon at length, and the familiar *credo quia impossibile*, misquoted from Tertullian, would be again reproduced as a felicitous description of the mental attitude of the spiritualist philosopher.

That the dissolution of the Ego into a procession or series of phenomena is a *reductio ad absurdum* of Sensism, will become evident to the impartial thinker on a little reflexion. The argument may be summarized in a syllogism: If the mind were but a succession of transient states, then judgment, reasoning, self-conscious reflexion, and rational memory would be absolutely impossible; but this is not the case; therefore the mind is not merely such a series. Judgment requires the indivisible unity of the agent which compares the terms; reasoning cannot take place unless the premisses successively apprehended are combined by one and the same simple energy; lastly, self-conscious reflexion and rational memory evidently imply the persistence of an abiding subject which can juxtapose the past with the present. Two terms, or two propositions, each grasped either at the same or different times by separate intellects do not result in a new judgment. Nor is the excitation of similar thoughts first in one mind and then in another, an act of memory. For knowledge proper the indivisible unity and persisting identity of the faculty which apprehends the subject and predicate of the judgment are essential.[10]

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[9] *Treatise of Human Nature*, Pt. IV. sect. 6.

The truth of our contention here will become more patent by a little consideration of any familiar mental operation. I have, for instance, just awoke from sleep. I remember that yesterday was Sunday, and I recall my rising, dressing, and various other actions which I performed in the forenoon. I am convinced that I who now lie reflecting on my bed am the same person who acted thus yesterday. For the last six or eight hours the continuity of my conscious states, so far as any psychological observation can teach me, has been completely broken, yet I am perfectly certain of my identity. How is this possible, if Self is nothing more than a succession of states? I reproduce images which I recognize as similar to those which *I* experienced yesterday. These representations are apprehended as numerically different but yet like in kind to the original impressions; the *I*, on the other hand, is unthinkable unless it is the same on the two occasions. Reflexion on this simple psychological experience demonstrates the falsity of the Sensationalist Philosophy.

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[10] That the Sensist theory is incompatible with the existence of even the simplest forms of intellectual judgment has been clearly exhibited by Lotze "Any comparison of two ideas, which ends by our finding their contents like or unlike, presupposes the absolutely indivisible unity of that which compares them; it must be one and the same thing which first forms the idea of *a*, and then that of *b*, and which at the same time is conscious of the nature and extent of the difference between them Then again the various acts of comparing ideas and referring them to one another are themselves in turn reciprocally related; and this relation brings a new activity of comparison to consciousness, and so on our whole inner world of thoughts is built up, not as a mere collection of manifold ideas existing with or after one another, but as a work in which these individual members are held together and arranged by the relating activity of this single pervading principle. This is what we mean by the *Unity of Consciousness*, and it is this we regard as the sufficient ground for assuming an indivisible soul." (*Metaphysics*, § 242.)

Mill felt this difficulty. He saw that in rejecting the doctrine that the *Ego* is something more than a succession of states he was forced to accept "the paradox that something which *ex hypothesi* is but a series of feelings *is aware of itself as a series*."[11] He however abandons the hopeless attempt to remove the "paradox," naively counselling us that "by far the wisest thing we can do is to accept the fact." The term "paradox" is here abused. *Incredible absurdity* is the phrase which would have precisely described the proposition that a series of feelings could be aware of themselves as a series. We must not deceive ourselves with words. What is a series? It is a succession of distinct events, or several separate events succeeding each other. The terms, a "thread of consciousness," and a "series" of mental states, seem to indicate a unity of some sort to which, loose though it be, the *self* of the Empiricist Psychology has no claim. The moment we attempt to accurately conceive what is meant by a mere succession of conscious states, we perceive that a conviction of personal identity, and a memory of past actions, such as each man's own experience assures him he is possessed of, is absolutely impossible to it.[12]

On the other hand, Mill is again wrong in representing his opponents as teaching that "the mind or Ego is something different from any series of feelings or possibilities of them," if by "different" is meant that the Ego is something separate, standing out of all relation to its states. The states are nothing but modifications of the Ego; and the true mind is the subject plus its states, or the subject present in its states. It is "an abiding existence with a series of feelings."[13] The ground for the possibility of self-consciousness, just as for self-determination, lies in the

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[11] *Exam*. cxxii. ad fin.

[12] As Mr. Courtney urges, "Such a series could never be summed." (*Metaphysics of Mill*, p. 70.) Similarly Professor Knight, "A succession of states of mind *has no meaning* except in relation to the substrate of self that underlies the succession, giving it coherence, identity, and intelligibility The states are different, but the self -whose states they are---is the same." (*Hume*, p 177.)

[13] Dr. M'Cosh's *Exam*. *of Mill*, c. v

immateriality of the soul. No material being, no activity intrinsically dependent on a material organ, can know itself or act upon itself. Free volition and self-consciousness therefore are alike incompatible with Sensism; and positivists are only logical in denying or seeking to explain away the existence of these attributes.

Besides the idea of Self, there are certain other abstract notions of such philosophical importance, that a word or two here regarding their genesis will be advisable. The chief and the most disputed of those not already dealt with, are the conceptions of *Substance* and *Accident*, of *Causality*, of the *Infinite*, of *Space*, and of *Time*.

Substance.—The origin of the concept of *Being* we have already indicated. All Being is divided into *substance* and *accident;* consequently, the ideas of substance and accident are merely ideas of particular kinds of Being. *Substance* is defined as *that which exists per se, that which subsists in itself; accident*, as *that which inheres in another as in a subject of inhesion.* The primary element, therefore, in the notion of substance is *subsistence*, not *permanence amid change;* though the latter feature is usually more prominently suggested to the mind. Motion, sphericity, redness, feelings, volitions, cannot exist by themselves —an accident must always pertain to a subject; consequently, since an infinite series of accidents inhering in each other is an absurdity, we must come at last to a something which exists *per se.*[14] Substance, then, is conceived as a subsisting something that abides the same amid the change of its accidents.

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[14] For a full defence of the *validity* of the notion of substance we refer the reader to the volume on *Metaphysics*, Bk. II c. i. Cf also *First Principles*, pp 250—255. Here, as elsewhere, the questions of *genesis* and *validity* so often confounded must be carefully distinguished. The origin of the idea lies in experience. Its first complete elaboration is a gradual process involving reiterated observation and comparison. But once the conceptions of Substance and Accident are thus reached, it is immediately perceived as a *self-evident* necessary truth, that accident must ultimately inhere in a substance. This axiom is not a generalization from experience, nor a product of association · it is a *rational intuition*

This idea is a product of intellectual experience. Even very early in life I observe things around me subsisting in themselves, and I am conscious that I myself possess real independent existence. Further examination causes me to notice greater or lesser changes taking place both in external objects and in myself. As I begin to reflect, however, I become assured that this change is not annihilation, and that some constituent element must remain the same amid the variations. Internal consciousness manifests to me my own substantial sameness amid my transient mental states, and reflexion on the evidence afforded by my external senses enables me to perceive the necessity of such an enduring identity underlying the transitory qualities of material objects. The reflexion required is not of a very deliberate or laborious character. It is a spontaneous activity of the rational mind. The shape and temperature of the piece of wax in the child's hands, the position and colour of objects before his eyes vary from moment to moment, but the substantiality of the object reveals itself to his intellect. Although the ideas of accident and substance were first wrought out very slowly, in mature life the apprehension of a necessary enduring element amid the fluctuating phenomena is so easy and rapid, that it may fairly be described as an *intellectual intuition.*

Causality.—The notion of *causality* is connected with that of substance, and can be attained only by rational free beings. Sensuous perception acquaints us with successive phenomena, but from this source alone we could not derive the idea of *causation* any more than that of *substantiality.* On the other hand, this concept is not an innate cognition, nor a subjective form of the mind. It is the result of intellectual experience, and it possesses real extra-mental validity. We may distinguish three elements or factors which normally co-operate in the formation of this idea.

(1) In our internal experience we are conscious of change among our mental states. In some cases of variation the order of succession seems casual, or we at least are unaware of the force which determines the

course of our thoughts. In others we are conscious that we ourselves control and direct the current. We fix our attention on particular feelings, we combine or separate thoughts, we form complex ideas, judgments, and reasonings. In all these processes we apprehend ourselves as *efficient agents*, and we immediately cognize the results as products of our *personal energy*. Causality is thus concretely presented to the mind in the most intimate manner in each individual deliberate act.

This experience alone would be sufficient to originate the conception of causation, but other factors assist in its elaboration. (2) Our senses reveal to us that when we *will* to move our limbs they are moved, and *in proportion to the degree of effort*. (3) They also make known to us the action of material objects upon us. We feel the latter as foreign and active, ourselves as passive and recipient. Sensations of pressure and resistance, in a special manner conduce to make us aware of force or energy — notions essentially involving the idea of causal efficiency. (4) Finally, we observe changes perpetually taking place in the world around us: we notice frequent transitions from not-being to being of various kinds. As our powers of reflexion develope the intellect grows to apprehend more and more clearly that there must be a *sufficient reason* for the rise of these new modes of being. Repeated observation assures us that this reason of the origin of particular forms of reality must lie in particular antecedents which have been always followed by these results, and then the intellect cognizes the changes *as the effects* of the *agency* of these antecedents.

It seems doubtful, however, whether the intellect could acquire the conception of force or productive efficacy had it no internal consciousness of causality in its own operations, and were it confined to the notice of external events; but of course such a type of intellectual experience is impossible.[15] At all events sensuous perception could never afford the notion of anything more than *succession*, which is radically distinct from that of causality, efficiency, productiveness, or whatever we like to call it. When an *effort* of attention combines two ideas, when one billiard ball moves another, when a steam hammer flattens out a lump of solid iron, when a blow on the head knocks a man down, in all these cases there is something more than, and essentially different from, the mere *sequence* of two phenomena: there is *effective force—causal action* of an agent endowed with *real energy*.[16]

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[15] Cf. Balmez, op. cit. Bk. X §§ 50—53.

The Infinite.—The idea of the *Infinite* is the idea of the *plenitude of all being*, of a Being who contains all perfections without limit. This notion is in part positive, in part negative; and, as a matter of experience, it is conceived by us. From both internal and external observation we can form the concept of a *limit;* and then of limitation in general. We can also form the idea of *negation;* the recognition of the principle of contradiction, the apprehension of the distinction between being and non-being involves this conception. Taking now the ideas of *being*, of *negation*, and of *limit*, we can combine them so as to form the complex conception, *being without limit*, that is, *infinite being*. The operation is, therefore, effected by the intellectual activity of reflexion and abstraction. The natural process will, however, be better seen by taking a single attribute, for instance, that of power. We are immediately conscious of effort put forth, and of power exercised by ourselves. We can conceive this power vastly increased, its boundaries pushed farther and farther back. We can imagine an agent capable of whirling round the earth or the solar system, just as we can swing a piece of string round our finger; yet we are fully aware that the power of such an agent may be as rigidly limited as our own. But we are not compelled to stop here; we may think "greater than that, and greater than that, and greater *without any limits or boundaries at all.*" Here we have the proper notion, faint and inadequate, but still truly representing infinite energy.

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[16] Kant teaches, in harmony with the spirit of the rest of his system, that *causality* and *substantiality* are *a priori categories* of the understanding,—innate moulds or conditions which regulate our thinking, but have no validity as applied to things-in-themselves Hume and his followers have sought to explain both ideas as products of "custom" or association. If consistently followed out, the Kantian and Sensist doctrines alike lead to absolute scepticism The real validity of the three notions, *causality substance*, and *personal identity*, must stand or fall together; and if the last is but an illusion, there can be absolutely no truth attainable by the mind of man On the relation between these ideas in the Sensist Philosophy, cf. Professor Knight's *Hume*, pp. 156—159. Some acute criticism of the Scotch sceptic is to be found in this little work. Notwithstanding certain points on which we deem the author to be wrong, his chapters on the philosophy of Hume are incomparably superior to the superficial treatment of the subject to be found in the somewhat similar volume by Professor Huxley.

We can similarly form the notion of infinite intelligence, holiness, and the rest; and then combining these we can conceive an omnipotent, infinitely intelligent, all-holy Being. We have now reached as perfect a conception of God as is possible to the finite mind. It is absurd to describe this as a purely negative notion. We ascribe to the Reality which we seek to realize to ourselves, every perfection we can conceive in the intensist form or degree we can imagine, and then we say: *All that and more without any limit.* Such a conception wants clearness and distinctness, but it most certainly is not purely negative. The thought of an attribute being increased beyond the range of our fancy without any limit assuredly does not thereby annihilate the positive content of the idea already represented to ourselves.

The Idea of Space.—We have already more than once touched on our cognition of Space, so that but little additional treatment is necessary here. We have established the fact of an immediate or intuitive perception of *surface* extension through at least two of the senses—*sight* and *touch*. We have also shown the part played by *motor sensations* in experiences of *solidity*, or the third dimension of bodies; and finally, we traced the growth and development of our knowledge of the material world. But the abstract *conception* of Space is not the same thing as the *perception* of an extended object, or a particular part of Space. It is an abstraction founded on such individual acts, but rising above them; and the same active supra-sensuous power by which the ideas of whiteness, truth, the infinite, &c.,

are formed, operates in the present case. The mind observing a material object prescinds from its other qualities, and thinks only of the *co-existence of its parts outside of each other:* this is the notion of *extension* in the abstract. Of course, however, as in the case of the ideas of *whiteness* or *being*, long before the mind has elaborated this reflex abstract notion, it has directly apprehended objects *as extended.* Still, even the abstract notion of *extension* is not strictly identical with that of *Space.* The extension of a body is a property which belongs to the individual body itself, and moves about with it, just as its other qualities. Space, on the contrary, we look upon as something fixed,—that in which bodies are contained, and through which they move. The space of any particular object is the interval or voluminal distance lying between its bounding superficies. Now, the human mind having once cognized the trinal dimensions of material bodies, and observed their motions, inevitably passes to the conception of the successive intervals or *spaces* which they occupy; it distinguishes between the extended thing and the *room* which the thing fills. Apprehending these separate parts of space as immediately juxtaposed, it conceives the *continuity* and the consequent *oneness* of space. Further reflexion enables us to think of lines produced in all directions beyond the boundaries of the existing universe, and we thus reach the concept of *ideal* or *possible* space. Noting that there is no limit to the possible production of such lines, we conceive possible space as *infinite;* not, however, as a positive existence or reality, but as an inexhaustible potentiality. The interval filled up by the entire physical universe is termed, in opposition to the imaginary region beyond, *actual* or *real* space.

The Idea of Time.—The genesis of the idea of Time we have also partially treated already. By observation, memory, and reflexion, we learn that some things—our own minds and external objects—*endure*, that they *persevere in existence.* Furthermore, by the same faculties we are made aware of the fact of *real changes* in these beings which endure; but this at once gives rise to the notion of *Time.* Change, even in our own mental states, involves *real succession* of events, one after the other; but the concept of a real succession contains the notion of time. Any single series of changes would afford sufficient material for the idea; but we prescind from all particular successions and conceive the abstract possibility of events occurring one after the other, and this gives us *the conception of Time in general.* For the *measurement* of Time we select, as we have already observed, the movements of the heavenly bodies, so conspicuous for their regularity. Space and Time are thus not real entities existing in themselves independently of the created universe, and apart from all mental consideration; but neither are they pure fictions of the imagination. Both ideas have a real foundation in external fact: the one in the real objective extension of the physical world; the other in the occurrence of real change. Both imply the existence of an active supra-sensuous faculty, and the latter especially demonstrates the abiding identity of the indivisible mind which combines together the past and the present.

Readings.—On Attention, cf. Balmez, op. cit. Bk. IV. §§ 7—11; Carpenter, op. cit. c. iii; Ladd, op. cit. pp. 534—543 On Reflexion and Self-consciousness, St. Thomas, *Sum.* i. q 87, also *De Veritate*, q. 10, a. 8, 9; Kleutgen, op. cit §§ 102—120; Balmez, op cit Bk. IX. cc. vii. viii; M'Cosh's *Exam of Mill*, c. v; Mivart, *On Truth*, c. ii.; Courtney, *Metaphysics of J. S. Mill*, pp. 67—75. On the Idea of Substance, cf. John Rickaby, *Metaphysics*, Bk. II. c. i.; Balmez, op. cit Bk. IX. cc. i. iii. vii.; Stöckl's *Lehrbuch*, § 31. On Causality, Rickaby, op. cit. pp. 304, seq; Kleutgen, §§ 300-303; Balmez, Bk. X. cc iv. v. viii xi xii xvi.; Stockl, op cit. § 45. On the Idea of the Infinite, Rickaby, Bk. I. c. vi.; Kleutgen, op. cit. Pt. V. cc. ii. iii. especially §§ 412—419; Balmez, Bk VIII cc. iii. iv. vi. viii. and xv.; Stockl, § 27. On Space and Time, Rickaby, op cit. Bk II. c. iv.; Kleutgen, §§ 342—369.

CHAPTER XVIII.

RATIONAL APPETITE, DESIRE, FREE-WILL.

As in sensuous life besides cognitive states we met with manifestations of conative activity, so in the higher grade of consciousness we find Appetency of a spiritual kind, which takes the form of Rational Desire or Volition. The term *Desire* is not exclusively confined to inclinations of the supra-sensuous order, for many yearnings aroused by the imagination of sensuous pleasures are so called. This, however, is but another instance of the intimate manner in which superior processes are mingled with inferior modes of psychical activity.

DESIRE.—Desire may be defined as *a mental state of longing or want aroused by the representation of some absent good.* It is a form of consciousness superior to and more refined than that of appetite in the modern sense. Unlike the latter, it is not a mere bodily need, nor is it limited to a single mode and definite range of activity. Nevertheless, in common with appetite it involves a species of discontent and longing. Complete analysis of Desire understood in its proper meaning reveals to us three elements: a representation by the imagination of some end or object not actually enjoyed; the appreciation of this object as good—in harmony with our nature, or some portion of it; and a resulting feeling of attraction towards the object. The two former are, perhaps, most accurately described as conditions, the last as the essence of desire. Thus I represent to myself the winning of a prize, I apprehend such an event as pleasurable, and I am then conscious of a state of longing for its attainment. While Appetite has its birth in sensation, Desire proceeds from the activity of the imagination. The range of the latter is consequently vast, and in a rational creature, who can conceive boundless good, it is incapable of being satisfied by any finite object.

Desire, strictly so called, must be carefully distinguished from *volition* or voluntary election. The state called Desire is necessarily aroused in some degree by the representation of a possible gratification, but the mind possesses the power of consenting to or resisting the attraction. In spite of our being drawn towards the desirable or desired object we can say, No. We can sometimes, at all events, struggle against the solicitation, and seek to banish it from our mind. It is in this act of rejection or ratification, in this *veto* or *fiat*, that the freedom of the rational conative faculty is exhibited. The term Desire, it is true, is also applied in a wide sense to the state of longing for some pleasure, when such longing has been freely consented to and indulged; but this lax use of the word should be carefully distinguished from Desire understood as equivalent to involuntary tendency towards any apprehended gratification. We have thus three different grades of orectic or conative activity: Appetite in the modern narrow interpretation, or corporeal cravings present throughout all sentient life; Desire or yearnings involving imagination, and awakened by representation of absent good; and, lastly, Volition manifested in free surrender or resistance to involuntary desires.[1]

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[1] It has been much discussed in recent years whether all forms of appetency are only towards pleasure and from pain. Mill, Dr. Bain, and determinists generally, maintain the affirmative. "Desiring a thing and finding it pleasant, aversion to it and thinking of it as painful, are phenomena entirely inseparable, or rather two parts of the same phenomenon; in strictness of language two different modes of naming the same psychological fact—to think of an object as desirable (unless for the sake of its consequences), and to think of it as pleasant, *are one and the same thing;* and to desire anything except in proportion as the idea of it is pleasant is a *physical and metaphysical impossibility.*" (Mill, *Utilitarianism*, p. 57.) Seemingly unselfish impulses are merely the effect of association. Virtue, like money, originally desired solely as a means to happiness, is later on pursued as an end in itself. This doctrine has been effectively refuted by numerous philosophers from Butler to Drs Martineau and Sidgwick: (1) Appetites proper are cravings whose primary object is the exercise of an activity, not the pleasure thence proceeding—*e.g.* the formal object of Hunger is food, not the subjective delight of eating; though of course by a reflex act this pleasure may be made an end. (2) Many desires proper are primarily *extra-regarding*, and not aiming at the agent's own pleasure—*e.g.* the parental and social affections, sympathy, compassion, gratitude, wonder, the desire of knowledge, and the mental activities of pursuit. (3) The aim of rational volition is certainly not *always* pleasure. We can choose right for its own sake against the maximum pleasure. The formal object of appetite is the *good*, not solely the *pleasant;* it includes *bonum honestum* as well as *bonum delectabile*. We may further urge (*a*) the *hedonistic paradox*, viz. that the deliberate pursuit of pleasure—the only rational end of egoistic ethics—is suicidal. Thus, the pleasures attached to benevolence, self-sacrifice, pursuit of knowledge, field sports, &c., are annihilated if consciously set as the end of our act. (*b*) The assertion that all these now apparently disinterested impulses are originally the creation of pleasant associations is an appeal from consciousness to ignorance, and is by the nature of the case incapable of proof. (*c*) The most careful observation of children

Desires may be classed as ultimate or fundamental, and derivative. The most fundamental desires are the yearning after *happiness*, the impulse toward *perfection* or *self-development*, and the instinct of *self-preservation*. The longing for happiness is the most universal principle manifested in the appetitive life of the soul. Happiness in general we are necessitated to desire, but we are free in the selection of the form of it which we will seek. *Malum qua malum* cannot be the object of any human wish. Of not less importance is the inclination towards self-development. There is in man an inherent impulse towards activity, which is realized in the use of his various powers. The craving is not, however, satiated by the mere exercise of the faculty; there is in addition the desire to enlarge its range and increase its force. This desire of self-realization varies in both direction and intensity in different men, and at different periods of life; but the inclination in some form or other is universal. The child, in whom potentiality is at its maximum, naturally exhibits this impulse in the most conspicuous manner. Both physically and intellectually it is always trying to extend its power; and the ever-recurring "why" exemplifies this primary appetite, just as well as the "play-impulse," or the longing to test the capabilities of its tiny arms and legs. The Emotion or Desire of Power is, as we shall see in a future

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confirms the view that they are subjects of many extra-regarding impulses (Cf. Sidgwick, *Method of Ethics*, Bk I [illegible] iv., Martineau, *Types of Ethical Theory*, Pt II Bk I. c. v. and Bk II. c i. § 3.)

chapter, but a development of this appetency. The instinct of self-preservation is universal throughout animal existence. Though not necessarily identical with either of the other two, it frequently coincides with both. There have been, of course, occasions when man has set at nought this radical principle of his nature, and deliberately compassed his own destruction. Still, in such cases we have merely the temporary triumph of the inclination towards happiness, which on its negative side appears as aversion from misery real or imaginary.

The derivative impulses proceed from these fundamental springs of action; or perhaps it would be more accurate to say they are special forms or modes in which the fundamental principles reveal themselves. To the tendency towards happiness belong the yearning for immortality, the love for society, the desire of esteem, and the like. Special forms of the impulse towards perfection and self-realization are the desire for knowledge, the moral sentiment, and the artistic instinct. Finally, the impulse of self-preservation is exhibited in the organic appetites, in anger, in antipathy, and in several other emotions. The relations between the more complex forms of emotion and these elementary modes of appetency will be discussed in a future chapter.

The physical appetites as the guardians of animal existence and well-being show themselves earliest in life. Desire proper, which is a more complex state involving a representative element, appears at a later stage. Its first manifestations consist in ill-defined cravings for relief, containing only the vaguest representation of the means or end to be reached. As the child grows older, unselfish impulses, such as sympathy, together with the longing for pleasures previously experienced arise. Free volition is born still later. It is not merely an outcome of appetite, nor yet a sensuous desire, nor even an exercise of locomotive energy. Dr. Bain and many determinists seem at times to confound *Free-will* with the power of movement; but the two are essentially distinct. The lamb and the chicken possess the latter from their entry into the world, whilst they never attain to the former.

During the years of infancy and early childhood, the human being is completely the creature of impulse, and only potentially separated in respect of moral action from the irrational animal. The precise date of the first exercise of Free-will, like that of the awakening of Self-consciousness, cannot be determined in any individual; but it implies considerable development in the power of reflexion, and is long subsequent to our chief locomotive acquisitions. Its simplest and probably its earliest form consists in the inhibition of impulsive movement,—in self-restraint freely put forth at the recollection of a past prohibition or painful experience. The moral training which the child receives has a most important influence in the rapid development of this power of self-control. Judicious expressions of approval and disapprobation on occasions of resisting or yielding to the solicitations of animal nature excite the child to the use of his moral liberty; and this faculty, like his intellectual and physical capabilities, is perfected by exercise.

FREE-WILL.—We have now arrived at the most important thesis contained in this first book of Psychology—that fundamental and far-reaching truth, the *Freedom of the Will.* Accordingly, it is our duty to devote all the space we can afford to the solid establishment of this momentous doctrine, and to the solution of the various fallacies and sophisms which have been invented to obscure its evidence, if unable to prevent its acceptance. This great philosophical truth, the Moral Liberty of Man, branches out into all departments of Metaphysics, and the view adopted on this subject should logically determine the theory of life and morality, which is the practical outcome of speculation. Ethics, Natural Theology, Ontology, and Cosmology all meet with the phenomenon of the human Will in one connexion or another; and all have to harmonize their conclusions with their creed on this point. If man does not possess Free-will, if he cannot by his own inherent personal energy oppose himself to the current of influences which sway him, whether in the form of inherited character, of early training or of present motives, then he is really nothing more than an irresponsible machine. The mechanism may be most ingenious, the agencies at work innumerable; but if his conduct is always the inevitable resultant of the forces playing upon him, there is no essential difference in kind between the acts deliberately willed by him and the movements of the madman, the brute, or the rain cloud.[2]

It seems to us, then, unaccountably short-sighted to ignore the importance of the issue. Some writers, however, appear to think the subject should be excluded altogether from Psychology, and others have been found to assert that even in Ethics the doctrine of Free-will is of no practical significance. It is hardly necessary to say that it is those who deny the reality of Freedom that usually adopt these views. A more surprising position still is that of those who maintain there is in reality no dispute at all, and who undertake to reconcile the imaginary antagonists. According to these sanguine peacemakers, both sides mean the same thing, and it is only inaccuracy of language and mutual misunderstanding that allows any place for such a controversy. Making the most liberal allowances, however, for ambiguity of words and confusion of thought in the treatment of this subject by numerous thinkers, it is still only an extremely superficial examination of the discussion which can leave the impression that the dispute is merely a verbal one. To assert that the controversy is only one of words, that there is no real divergency of view, is virtually to affirm that St. Thomas, Hobbes, Descartes, Spinoza, Leibnitz, Kant, Hegel—in fact, all thinkers of note from St. Augustine to Mill and Schopenhauer, are on a vital philosophical problem not simply mistaken, but utterly ignorant of what they are talking about.

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[2] Mill (*Logic*, Bk. VI. c. ii § 3, n. 3) seeks to make a distinction between *Determinism* and *Fatalism* The latter doctrine holds, he teaches, that all our acts are determined by *fate* or external circumstances, independently of our feelings and volitions Determinism, on the contrary, maintains that action is determined by feeling. *In practice*, then, they will certainly differ. The *determinist* may seek to arouse good desires in himself or others, the *fatalist* will abandon the attempt as useless But *logically* fatalism flows from determinism. In connexion with this point Mill falls into one of his frequent inconsistencies, teaching that "our character is in part amenable to our will." (*Exam* p. 511.) Our character is, of course, merely the result of inherited constitution and personal acts. The former is obviously beyond our control, and according to Mill the latter have all been inevitably predetermined by antecedent character and external influences until we reach infancy, where of course there was no freedom at all. The desire to "alter my character" or to improve myself must in the determinist theory have ever been *as independent of* me, as *completely given to* me, as the shape of my nose or the colour of my hair.

Will, or *Rational Appetite* in general, may be described as the *faculty of inclining towards or striving after some object intellectually apprehended as good;* but viewed strictly as a free power it may be defined as *the capability of self-determination. A volition is an act of Will.* By *Free-will* or *Moral Freedom*[3] is meant that endowment by which an agent, when all the conditions requisite to elicit a volition are present, is enabled either to put forth or abstain from that volition. Free-will thus implies that volitions are freely exerted by the *Ego* or Person, and are not the necessary outcome of his nature and the attractions of the moment.

Now, many of man's acts are not free. Control over our thoughts ceases during sleep; and even when awake, independently of automatic movements, such as breathing and winking, we perform many acts not clearly realized in consciousness, and others which though distinctly apprehended are yet done without reflexion. A long train of thought may thus have passed through our mind before we, by an act of self-consciousness, advert to the fact, and become aware that, although hitherto it has been indeliberate, henceforth it is voluntary, and we are responsible for it. An act of this kind is said to be *spontaneous*,[4] though not necessarily free or voluntary in the proper sense.

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[3] The terms *Liberty* and *Freedom* are used in more than one sense. *Physical Liberty* means immunity from physical compulsion or restraint (*necessitas coactionis*). The unbridled horse is in this signification free, the prisoner in a cell is not, though the latter is *morally* free, while the former is inexorably determined by his nature (*necessitas naturae*). The object of *physical liberty* is the *actus imperatus*, the movement commanded by the will; that of *moral liberty* is the *actus elicitus*, the volition itself

The question at issue, then, is not whether *every* action of man is free, but whether *any* action is so. In the words of Mr. Sidgwick, "Is my voluntary action at any (every) moment determined by (1) my character (*a*) partly inherited, (*b*) partly formed by past feelings and actions, and (2) my circumstances or the external influences acting on me at the moment? or not?" Could my volition be predicted with absolute certainty by one knowing my nature and all the forces operating on me? "or, is there a strictly incalculable element in it?" Or to put it otherwise: Is the consenting act of the Will always completely determined by pre-existing circumstances? Or in yet another form: Given all the pre-requisites for a volition except that act itself, does it necessarily follow? Determinists or Necessarians answer in the affirmative; Libertarians or Indeterminists say, No.

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[4] According to the definitions of the schoolmen, *spontaneous* acts are all those having their source within the agent, *e.g.* the movements of the roots of a plant, as well as the impulsive or deliberate actions of brutes or men. They merely exclude *coaction*. *Voluntary* acts in a lax sense are those proceeding from an internal principle (*i.e.* spontaneous) with the apprehension of an end. They exclude unconscious tendencies. *Voluntary* acts in the strict proper sense are deliberate or free. They imply not only an apprehension of the end sought, but a self-conscious advertence to the fact that we are seeking it. The impulsive act of the brute or of man, which is the outcome of his nature, is voluntary in the lax sense, but involuntary in the stricter signification. The term *actus humanus*—human action—was used by the schoolmen to denote only *free* or *deliberate* acts: *actus hominis* designated all indeliberate action of man.

We allow most readily, first, that a great part of man's daily action is indeliberate, and is accordingly merely the resultant of the forces playing upon him;[5] secondly, that where he acts deliberately, and exercises his power of free choice, he is greatly influenced by the weight of the motives[6] attracting him to either side; and, finally, as a consequence of this we allow that a being possessed of a perfect knowledge of all the forces operating on a man would be able to prophesy with the greatest probability what course that man will take. But, on the other hand, we assert emphatically that there are many acts of man which are not simply the resultant of the influences working upon him; that he can, and sometimes does, set himself against the balance of aggregate motive, natural disposition, and acquired habit; and that, consequently, prediction with absolute certainty as regards the future free conduct of man is impossible from mere knowledge of character and motives.

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[5] Unreflexive action of this kind was happily termed by Dr. W. G. Ward, *the spontaneous impulse or inclination of the Will* (Cf. *The Philosophy of Theism*, Vol. I. p. 246.) We have formulated the question above in these several ways to make the issue as clear as possible. Mis-statement of the problem is even still a popular device of determinists.

[6] It may be well here to define some of the more important terms. *Impulse* is a state of feeling tending to issue into action. Dr. Bain's definition of *voluntary action* as "feeling-prompted movement" coincides with *impulsive*, but not strictly *free* action. *Motive* is whatever attracts the will, the apprehension of a desirable end, an agreeable consequence of my action viewed as *moving* me. *Desire* is a craving, a yearning, a feeling of want, the mental state of uneasiness awakened by the representation of an absent good. *Intention* etymologically signifies *the act of tending towards something*, and is commonly described by the schoolmen as *the tendency of the Will towards some end through some means*. (Cf. St. Thomas, 1a 2æ, q. xii. a. 1, 2.) It is thus opposed to *choice*, which refers to the selection of intermediate means. If we wish to bring out the distinction between *Intention* and *Motive*, perhaps our best definition of the former will be: a contemplated action or series of actions viewed as *consciously accepted* or *consented* to by the will. The *Motive* is a *represented good* viewed as *attracting* me; the *Intention* is the Will's

The arguments usually adduced to establish the Freedom of the Will proceed upon three different lines, the psychological, the ethical, and the metaphysical.

A. *Psychological Argument.*—The first proof is that from the direct testimony of consciousness. It has been justly asserted that consciousness is the ultimate court of appeal in the science of mind. Beyond this the philosopher cannot go: a higher certainty than what it affords he cannot attain. Upon its assurances all our convictions, mathematical, physical, and moral, must ultimately rest. Consequently, if careful and repeated introspection reveals to us as the clear declaration of consciousness that we are free in the exercise of volitional

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act of embracing a represented good. The *intention* is always *free*, while the *desire* or *craving* is not, unless consented to or ratified. *Purpose* is a deliberately formed intention with regard to a future series of acts or a remote end.

acts, such an averment must be admitted. If other scientific generalizations seem to conflict with the immediate truths of consciousness, they must be re-examined and modified until they can be harmonized with these latter. If propositions of the one class are really irreconcilable with those of the other, so much the worse for the former. They stand thereby disproved. At best they are inferences reached by a longer or shorter process of reasoning possessing a liability to error which certainly does not diminish with the number of links in the chain. Neither the principles on which the demonstration rests, the facts from which it starts, nor any of the judgments which form the intermediate steps of the argument can claim an authority higher than the assurance of our consciousness. It is clear, then, that no reasoned inference can claim to dethrone an immediate affirmation of consciousness. Now, consciousness most unmistakeably affirms in the moment of deliberate decision that we chose freely.[7] Therefore we have freedom of choice, or *Free-will.*

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[7] This affirmation is accurately described by Mr. H Sidgwick. "It is impossible for me to think at such a moment that my volition is completely determined by my formed character and the motives acting upon it. The opposite conviction is so strong as to be absolutely unshaken by the evidence brought against it; I cannot believe it to be illusory. So far it is unlike the erroneous intuitions which occur in the exercise of the senses; as (*e g.*) the imperfections of sight and hearing. For experience soon teaches me to regard these as appearances whose suggestions are misleading; but no amount of experience of the sway of motives even tends to make me distrust my intuitive consciousness that in resolving after deliberation I exercise free choice as to which of the motives acting on me shall prevail" (*Methods of Ethics*, Bk. I c. v. § 2, 1st Edit.) Later editions do not treat the subject so fully.

If a man asserts that he is aware of no internal experience of free choice, then argument with him is useless. We can only appeal to the impartial mind anxious to attain truth. If any man within his own mental life discovers no phenomenon of the kind indicated, we cannot by any logical contrivance introduce it thither. But if internal observation assures him of the reality of this fact, which we know to exist in our own case, and which the ethical and other judgments of mankind at large prove to be universal among rational men, then he may rest convinced on the highest evidence which can be presented to his intellect, that he is endowed with Free-will.

Although, however, we cannot demonstrate to any one the existence of a fact of consciousness, we may by an illustration awaken him to the perception of something which he already possesses. Suppose, for instance, I am reading hard for an approaching examination. A less studious friend drops into my room some evening and asks me to go with him to the theatre to witness a new play which is having a great run. I have not yet seen the play and feel a considerable desire to do so. My friend is eloquent. I am, he urges, working too hard; my health will break down unless I am prudent; or I shall get hopelessly muddled by the day of the examination. A change, a little relaxation will do me all the good in the world, and improve my working power. Moreover, the piece is advertised to close before the examination, so that if I do not go now I shall lose the chance of seeing it. Listening to these arguments I feel the case for the theatre to be strong. On the other hand, I am very anxious to do well at the coming competition. I know, indeed, that a little recreation might be judicious, but at the same time I feel sure that three or four hours of a run into the country would be the best investment. I weigh carefully the two courses and finally decide to stick by my books to-night, offering instead to take a long walk with my friend to-morrow afternoon.

Now in this act I am conscious that I am choosing freely. The opposing attractions are about equal. I desire on the one hand the proximate vivid pleasure of seeing the play, on the other the remote but higher pleasure of doing my very best at the approaching contest. The determinist may, of course, allege that my deliberation is a mere struggle of motives, and that the strongest finally prevails; but this assertion is in direct conflict with what internal observation reveals to me to be the case. I admit that often with weak-minded individuals, and occasionally in my own experience, the Ego or Subject seems to be passively swayed, or rather to *allow itself* to be so swayed, by the competing attractions, and finally to drift in the direction of the predominating enticement. But that is certainly not the situation here. If the testimony of consciousness after the most diligent and careful examination is of any value, I am positively sure that I am not in such a passive state. It is *I* who determine which group of motives is to prevail: *I* freely choose: and *in the moment of choice* I feel the most complete assurance that the volition is a *free act on my part.*[8]

The conviction that I have chosen freely—that the situation being precisely the same I might have freely done the opposite—remains afterwards. I cannot for a moment by any effort doubt that the act of consent was within my power. It is quite possible of course that I might not have been able to go to the theatre. I might have been paralyzed by a fit the next instant; but *in that act of decision* I was indubitably free. Suppose again I did the opposite, and yielding to the proximate pleasure accompanied my friend. The conviction is equally clear and irresistible, both in the act of election and on my way, that I am acting freely.

Or take another example of general application. Some thought or desire of a morally forbidden nature enters my mind: a malevolent feeling; an emotion of vanity; an impure image; or an angry impulse. The evil state may have been present for some time before I advert to its illicit character. So long as this is the case it is strictly involuntary and I am not responsible for it. Now, however, becoming aware that I ought to reject it, I endeavour to do so by turning away my mind from it. The thought recurs, and the struggle may be very troublesome and annoying before I finally conquer.

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[8] What we are directly and positively conscious of is not that we are able to move our limbs—this we know by past experience—nor yet that *we shall be able* to choose in the next second, this also is an inference and may be falsified by death, &c. The affirmation is that *now* in the *moment of consent or refusal* I freely elect. This, too, is a positive not a negative deliverance. Dr. Mivart in an admirable chapter on "Duty and Pleasure" in his *Lessons from Nature*, p. 122, states the position clearly. "Assertors of *Free-will* do not of course maintain that they are conscious of what is external to their consciousness, as if they could see as a spectator that external and internal influences do not in all cases determine their actions; but what they do assert is that they themselves *in the very act of deciding* exercise occasionally a free power or choice, for which choice they are justly responsible."

This we believe to be a not infrequent experience of most men, at any rate of all men endeavouring to lead moral lives.[9] Yet a clearer disproof of Determinism cannot well be conceived. *Suppose that we were free, what more cogent evidence could we have?* At every instant of the struggle I am resisting manfully the predominant gratification. On the most unequivocal testimony that my consciousness can afford me I am convinced that I can only too easily give way, and that it is by painful effort I restrain myself from so doing. Throughout the combat I distinctly realize that it is *wrong* to yield, and the motive of doing right possesses for me a genuine attraction; but still it is a complete perversion of facts to say that my cognition of the rightness of this course converts it into a pleasure which for me out-balances the agreeableness of the gratification, and inexorably draws me to this side. The careful and impartial observer of his mental states will consider it just as credible that the temptation does not exist at all, as that he is not freely resisting, freely striving against the more pleasant course. Insuperable difficulties to a preconceived theory can, of course, always be met by asserting that the observed facts which conflict with it are "illusions," but such procedure is a confession that the theory in question is in a bad way; and where the evidence is as decisive as in the present case, it is nothing but a blind effort to bolster up a baseless superstition.

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[9] Dr. W. Ward justly contends that the earnest practical Christian must have incomparably more experience of this free resistance to temptation, than men who repudiate the reality of holiness and sinfulness in the Christian sense of these terms. (*Philosophy of Theism*, Vol. I. pp. 256—260.)

B. *Ethical Argument.*—"Thou canst for thou oughtst." *Duty, Obligation, Responsibility, Merit,* all imply moral liberty. Kant, widely as he deviated in other respects from ancient modes of thought, recognized that Free-will lies at the root of Ethics—that it is, in fact, an absolutely essential condition of morality. Consequently, he appeals to the existence of moral obligation as an irrefragable proof of liberty. The inference is perfectly just. If we *ought* to abstain from a forbidden gratification no matter how pleasant it would be to us, if we are to be held *responsible* for our deliberate consent to it, if we are *meritorious* and *deserving* of approval for resisting it, then assuredly we must be possessed of Free-will, we must be capable of yielding just as well as of refusing to yield, and our act must not be the mere inevitable outcome of our circumstances, internal and external.

If then Determinism be true, every volition elicited is the resultant of the attractions operating at the time upon our character, in part inherited, in part formed by past experience. Now, as to the inherited element, *we* have had nothing to say, and *we* are in no way responsible for it. But neither are *we* an atom more accountable *on determinist grounds* for our acquired habits—the factor due to past experience; nor yet for the force of the motives at present operating. The latter are obviously independent of us; we have not the power of making the less pleasant attraction more pleasant; we have no *Free-will* to resist the greater gratification. Finally, as regards our acquired habits, they have been formed by a series of volitions precisely similar to the present, in no one of which, *on the determinist hypothesis*, were we more free than now. The simple truth is, that on the necessarian view the life of each individual, whether good or bad, is a series of events over which he has no more control than a cork on the surface of the sea has over its own movements. Man, indeed, like the brute or the maniac, feels, whilst the cork does not, but there is no essential difference as to the voluntariness, and therefore as to the morality of his acts. His nature is *given to him:* his character is made *for him:* and his every volition is inexorably ruled by forces which he cannot restrain.

Now, it is very important that this should be clearly recognized. "On the Determinist theory, *ought*, *responsibility*, *desert*, and similar terms should be used, if at all, in new significations."[10] Some supporters of the doctrine frankly avow this, though others appear to consider that the public are not yet sufficiently prepared for such a communication.[1] In other words, if Determinism is true the entire human race have been hitherto under a most stupendous delusion. For the universal consent of mankind as expressed in the languages, literatures, and laws of all times emphatically affirms that there is such a thing as *real moral obligation*, as *accountability*, as *merit*, and the rest. All men place a distinction between certain acts done indeliberately or involuntarily, and similar acts done deliberately or voluntarily, which implies that the latter are free and the former are not. It is true that we incarcerate the maniac in an asylum, and quarantine the cholera patient, just as we imprison the deliberate criminal. But we make the widest conceivable dis-

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[10] H. Sidgwick, *Methods of Ethics*, Bk. I. c. v. § 2 Dr. Maudsley, op. cit. p. 415, admits this. He teaches that belief in moral freedom may have been socially useful in former times, but is no longer necessary. "The doctrine of Free-will, like some other doctrines that have done their work and then, being no longer of any use, have undergone decay, . . . was necessary to promote the evolution of mankind up to a certain stage." (p 421.) It is strangely argued

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by Mr. Sidgwick that the question of Free-will has little or no bearing on Systematic Ethics, op cit. c. v. §§ 4, 5. The whole controversy comes to this If we mean by the *Science of Ethics* merely the exposition of a code of judicious rules of individual conduct, a psychological account of the formation of habits, and a scheme of useful social sanctions, then, perhaps, the problem of Free-will might be ignored in such a "systematic" treatise But if by the *Science of Ethics* we mean, not a body of precepts to attain an end somehow or other assumed, but a *Moral Philosophy*, *i.e.* a *philosophical* determination of the right end of human action, an analysis of the grounds of Duty or Moral Obligation, a rational account of the moral convictions of man universally embodied in the leading ethical terms and ideas—responsibility, merit, approval, remorse, &c, and an adequate treatment of the most wide-reaching of all ethical virtues—*Justice*, then, and such is of course the only study worthy of the name of the *Science of Ethics*, then the Freedom of the Will is not merely not a side issue: it is a most vital and all important question penetrating to the very foundations of Moral Philosophy. The fact that leading determinists such as Mr. Spencer and Dr. Maudsley, as a logical consequence of their doctrine reduce *morality* to *natural* action makes the significance of the problem clear. For some good remarks on this subject, cf. Martineau, *A Study of Religion*, Vol. II. pp 311–324 tinction between the states of these men in our own minds. The two former we do not consider *responsible* for the harm they have caused, though it may far exceed that of the latter. We take measures to prevent their innocently doing further evil, and we may even apply painful remedies; but we do not consider them deserving of moral censure, we do not *blame* them. The act of the madman, the act of the somnambulist, and the involuntary act of the sane man, are precisely of that kind with which necessarians identify *all* our conduct. These actions are inevitably determined by character, partly inherited, partly acquired, and the motives operating on the agent at the moment. Consequently, we say he could not help it, he had not control over himself at the time, he is not *guilty*.

Some acts of this class may, indeed, possess a certain culpability indirectly or remotely through negligence, or in so far as the previous conduct of the agent may have led to his present state, and we may on this account blame him; still, looking solely at the present act, we say it was not truly culpable, as he was not *free*. The same acts done freely we visit with intense disapprobation. We hold that the agent was responsible for them, and that they were not the outcome of his circumstances, but due to his free choice, his deliberate consent; and we make precisely the same distinction in our own case. We are conscious of our own keen reprobation and remorse for harmful acts freely consented to, whilst for the same done indeliberately there may indeed be the liveliest regret, but there is no *self-condemnation*, unless we can trace them up to some free culpable volition. The converse holds as regards beneficial action, and the reader may easily conceive examples.

The denial, then, of Free-will is not merely a rejection of the most manifest declarations of consciousness in a question upon which this faculty is the highest judge, but it is a repudiation of the universal conviction of mankind corroborating that testimony. Determinism necessarily maintains that the ideas of responsibility, merit, approval, and duty, as apprehended by mankind, are fictitious inventions; and that man so far from being a free personal agent, capable within a certain limited extent of shaping out his moral career, is as completely a creature of circumstances as the rudderless ship driven before the storm. The fact that some determinists shrink from such a conclusion, or may apparently themselves lead moral lives, in no way affects the question. It is a matter of logic, of philosophical principles, and not of sentiment or individual practice; and it is of the very utmost importance that the issue should be clearly realized.

C. *Metaphysical Argument.*—The third form of proof used in establishing the Freedom of the Will is sometimes called the Metaphysical Argument. The distaste for metaphysical speculation, which has held such complete sway in this country during the last two centuries, and which so seriously damaged the best writers of the Scotch school, has virtually ostracized this argument from English philosophical literature. We readily admit that it is of very little use for the sake of converting a man who is not convinced of the existence of Free-will by the preceding lines of reasoning. But, on the other hand, it has the advantage, which they do not possess, of showing the *cause* of our freedom, and the natural continuity of that freedom, as long as reason remains to us in this life. We do not of course mean by this, that there is moral liberty involved in every use of reason. We have already pointed out that freedom is limited to those states of mind in which we advert to thoughts and desires that have occurred to us, and in which we are thus in a reflex manner concomitantly aware of the character of these thoughts—of their real or apparent worth, of their value estimated from a moral, a prudential, or a hedonistic standpoint. As often as the mind is in such a condition—and every man's experience assures him of its frequency—we are free to indulge or resist the thought, to foster or struggle against the desire.

The cause of this lies in the fact that the Will is a *rational* appetite: an appetite which embraces nothing of necessity, except what is apprehended as *desirable in every respect.* The Rational Will can be irresistibly drawn only by that which reason proposes as so universally attractive that it contains no dissatisfactory feature. As long as the thought of an object reveals any disagreeable aspect, the Will has not that which it is naturally longing for—perfect happiness—and it is able to reject this object. The Will is moved to desire an object only in so far as that object is good. Appetite is in truth merely tendency towards good, whatever form that good may take; and an object which contains any deficiency is the reverse of desirable so far as that feature is concerned. If, then, attention is concentrated on this point and withdrawn from those which are attractive, the object loses its enticing force. But during this present life no object presents itself to the intellect as attractive under *all* aspects *when we advert to its value*,—that is, in the mental situation for which liberty is claimed. As regards finite goods it is obvious that, either in the difficulty of their acquisition, or in the uncertainty of their possession, or in their possible incompatibility with our highest good, there is always something on account of which they are undesirable, and for which man may turn away from them to seek the infinite good—God Himself. At the same time it is equally clear that man is not at present drawn inevitably in this latter direction. The inadequate and obscure notion of God possessed in this life, the difficulty of duty, the conflict of man's pride and sensuality with virtue, all make the pursuit of our true good disagreeable in many respects to human nature, so that we can only too easily and freely abandon it. The clear apprehension of an Infinite Good, such as is given in the Beatific Vision of the blessed in Heaven, would of course remove this freedom. The blessed cannot help loving God above all things; we, however, though necessitated to seek after good in some shape or other, are at liberty to reject any particular form of it presented to us.

Our Freedom, accordingly, lies in our power of choosing between the manifold kinds of good which are ever conceivable by the Intellect. it is, in fact, a free acceptance of intellectual judgments concerning the desirability of thoughts and external actions. Free-will is, therefore, a result of man's possession of a spiritual faculty of cognition whose object is the universal, and which can conceive unlimited and unalloyed good. Consequently, where such a power does not exist, as in the case of brute animals, moral liberty is absent.

The establishment of Free-will by the two former arguments demonstrates that independently of the intellect we are endowed with a spiritual faculty, an activity superior to matter, and not completely controlled in its operations by the physical organism. This in truth is the rock of offence. If the Will is free, then there is more in man than an organized frame. *A spiritual activity must proceed from a spiritual substance.* If the evidence for freedom was impartially weighed like that bearing on any ordinary scientific question, we cannot conceive that there would be a moment's hesitation in pronouncing in its favour. It is the distastefulness to certain minds of the inevitable consequences of that doctrine—the admission of a spiritual principle, a rational responsible soul with a future life of reward or punishment, that causes many determinists to shut their eyes to the irrefragable nature of the argument.

OBJECTIONS AGAINST FREE-WILL.—We will now sketch briefly the leading objections urged against Free-will. It will be best to discuss them in their most modern form, for, although a tolerably extensive study of the literature of the subject has convinced us that there is not a single difficulty of any real force put forward to-day which was not in its essential features familiar to the philosophers of the thirteenth century, nevertheless the dress in which objections appear has inevitably changed. Since many of these in their new attire claim to be the outcome of modern science, we will treat them under the heads of the several branches of knowledge to which they belong. We will start with those which are asserted to proceed from the study of the mind itself.

A. PSYCHOLOGICAL DIFFICULTIES.—1. Many determinists devote a considerable quantity of abuse to the doctrine of Free-will, as a fitting exordium to prepare the reader's mind to make proper estimate of the *pros* and *cons*. Thus, Dr. Bain characterizes his opponent's view as *incomprehensible* and *unintelligible*. Free-will is "a power that comes from nothing, has no beginning, follows no rule, respects no time or occasion, operates without impartiality;" and reasonably enough he looks on such a conception of voluntary action as "repugnant alike to our intelligence and to our moral sentiment."[11] In the same strain Dr. Maudsley: "A self-determining will is an unmeaning contradiction in terms and an inconceivability in fact."[12] Such rhetorical devices are to be met by simple denial. That the mind possesses at times the power of free choice, of freely yielding to or resisting agreeable attractions, that it is not always inevitably determined in the direction of the greatest apparent pleasure is at least as intelligible a proposition as its contradictory. Moreover, since it expresses what is practically the universal conviction of mankind, it cannot be self evidently absurd.

[11] *Emotions and Will* (3rd Edit.), pp 483, 492, 500.

[12] Op. cit. p. 412.

2. The "obnoxious terms, necessity and liberty,"[13] are denounced as inapplicable and misleading, and the notions attached to such terms as "responsibility" require, it is held, considerable overhauling. The answer here is obvious enough: a theory that finds itself in opposition to the most familiar terms in the language cannot claim to be a very accurate exponent of thought. Language, as we have said, has been well described as fossilized thought, and for this reason philology may afford valuable assistance in dealing with some psychological problems. If, then, the ideas awakened in men's minds by such words as *self-control, accountability, merit, moral liberty*, are absurdly in conflict with the determinist theory, well, so much the worse for that theory.

3. It is affirmed that our own internal experience is in favour of the necessarian view. Introspection tells us that we are always determined by motives; and it is denied "that we are conscious of being able to act in opposition to the strongest present desire or aversion."[14] By "strongest," is meant strongest estimated in quantity of pleasure or pain. Now, here we come to the point of assertion and denial about an ultimate fact of consciousness which is incapable of demonstration, and which each must examine for himself. We hold that each man's own internal experience reveals the fact that he can at times resist the strongest desire or aversion, and we believe that most men, at least occasionally, do so. In involuntary acts we admit also that we are inevitably necessitated by our character and the motives operating upon us. Even in deliberate choice we are *influenced* by the greater weight of motive on one side, but we are not *inexorably determined* thereby.

4. "The strongest motive always prevails." This is either a tautological statement, or it is untrue. If strength of motive is to be determined by its final prevalence, then it is an identical proposition affirming the undeniable truth that the motive which prevails,

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[13] Bain, op. cit. p. 485, and Mill, *Exam.* c. xxvi.

[14] Mill, *Exam.* (2nd Edit.), p. 505.

does prevail. This seems to be Dr. Bain's view.[15] Mill, however, says, by *strongest* is meant most pleasurable.[16] In this sense the statement must be denied, and appeal made to the illustrations of our first argument.

5. Some writers find misrepresentation the mcst effective method of demolishing the case for Free-will. "That every one is at liberty to *desire*, or *not to desire*, which is the real proposition involved in the dogma of Free-will, is negatived as much by the analysis of consciousness as by the contents of the preceding chapters."[17] We emphatically assert that the question is not whether *desire* be free, or whether *action in opposition to wish* be possible. G. H. Lewes is here less unfair towards his opponents. "No one," he says, "supposes that our desires are free."[18] *Desire* is an ambiguous term. Primarily, as we have already indicated, it means a consciousness of want or insufficiency to be satisfied by some represented object. Such a state is, of course, not a volition or free act of the will. The latter consists in the rejection of, or consent to, this feeling—in the act of permitting or resisting the spontaneous movement of the appetite towards the desired object. We certainly can at times put forth an act of will to restrain this spontaneous desire. The word *desire* is, however, also used to designate the movement of the appetite, when this motion has been accepted or adopted by the will, and of course in this sense it is impossible not to will or desire what we freely desire.

6. One of the difficulties most frequently urged is, that experience of our neighbour's actions shows that they are ever determined by character and motives. "We always explain the voluntary action of all men except ourselves on the principle of causation by character and circumstances. Indeed, otherwise social life would be impossible, for the life of man in society involves daily a mass of minute forecasts of the actions of other men founded on experience."[19] "All the

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[15] *Emotions and Will* (2nd Edit.), p. 409. [16] *Exam.* p. 519.

[17] H. Spencer, *Principles of Psychology*, § 219.

[18] *The Study of Psychology*, p. 109.

[19] Sidgwick, op. cit. Bk. I. c. v. n. 2.

massive evidence to be derived from human conduct, and from our interpretation of such conduct, points to the conclusion that actions, sensations, emotions, and thoughts, are subject to causal determination no less rigorous than the movements of the planets."[20]

This objection, however, really proves nothing against our doctrine. For, (*a*) such predictions and judgments deal mainly with external acts of which a large part are indeliberate, and so necessitated by circumstances. (*b*) Even as regards deliberate actions, unless where they have an importantly marked moral character, men follow freely the spontaneous impulse of the will, which is the resultant of character plus motives. The most thorough-going libertarian allows that man's will is influenced, though not inexorably constrained, by these forces; and hence Christian teachers of all times have laid the greatest stress on the formation of virtuous habits. (*c*) Even where the morality of an act becomes prominent, it is only men aiming at a virtuous life that frequently resist the solicitations of pleasure. (*d*) That in an unreflexive mood we should seem to consider other men's acts to be completely determined by character and motives, is quite explicable on the principles of mental association. These forces have admittedly great influence, and they are the *only* factors of the case which come within our cognizance. Accordingly, the unknown element of the will being always neglected, the observed agents, by a mental process sufficiently illustrated by our opponents, impress themselves vividly on our mind, especially in connexion with successful predictions, and so cause the existence of the unseen element to be forgotten. (*e*) Finally, when we reflect upon the deliberate moral acts of others, we most certainly do *not* believe them to be the inevitable outcome of their circumstances, as is shown by our allotment of praise and blame.

7. "The conviction of freedom is an illusion." Spinoza stated briefly and clearly this argument so generally adopted by recent necessarians. "Men," says the father of modern Pantheism, "deceive them-

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[20] Lewes, op cit. p. 108.

selves in thinking that they are free. On what is this opinion based? On this alone, that they are conscious of their acts, but ignorant of the causes which determine them. The idea which men form of their liberty arises then from this, that they do not know the causes of their actions."[21] To this we may reply, that no hypothesis, however absurd, that was ever invented regarding any problem, could be effectively disproved, if it might conveniently dispose of ugly facts by calling them "illusions." If then, as the objection allows, after the most careful interrogation of consciousness, we be convinced that we are free, and if this conviction be confirmed by universal judgment. then the psychological theory which has to meet this affirmation of consciousness with a denial incapable of proof is in a hopeless plight. The difficulty is also upset by another consideration. In spontaneous indeliberate acts we are often precisely in the state here depicted—"conscious of our acts, but ignorant of their causes"—yet we do not hold them to be free, but clearly distinguish them from those other acts where we struggle to resist the aggregate of preponderating attractions.[22] The simple truth is that our consciousness of freedom is not a mere *negative* feeling springing from ignorance of the forces constraining us, but a *positive* apprehension that we *freely* decide—that we ourselves put forth personal causation.

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[21] Cf. Maudsley, op. cit. p. 409.

[22] Mr. Sully, who teaches that the conviction of freedom is an illusion, admits that "reflexion does undoubtedly modify the actions of the motives to some extent" (*Outlines*, p. 671), but, because "this act of reflexion has its own motive," he implies that it is inevitably determined. Thus, whenever at any period in life a temptation to commit a wicked action occurs to me, whether I shall reflect on its shameful side and abstain, or yield at once, is always completely predetermined by circumstances beyond my control We may here express our surprise (*a*) that Mr. Sully should ignore the difference between the will requiring *a* motive —*i.e.*, an apprehended end, an object somehow desirable—and being inexorably determined by *the strongest* motive, the preponderating pleasure; (*b*) that acknowledging Psychology "has its own proper method, introspection" (p. v.), nay, after even energetically vindicating the efficiency of this instrument against Comte, he should, on the dubious testimony of merely supplementary aids, illogically repudiate the clear and manifest decisions of what he has allowed to be the highest authority; and also (*c*) that holding every act of the mind to be rigorously predetermined for us, he should in another part of the same volume define *attention* as, "the *active self-direction of the mind* to any object that presents itself at the moment." (p. 71.)

8. The fiction of Free-will, it is said, has its root in the illusion, that the mind is at any moment not merely the aggregate of conscious states then present, but something persisting amid these changing phases. "The collective 'I,' or 'self,' can be nothing different from the feelings, actions, and intelligence of the individual."[23] "Considered as an internal perception, the illusion consists in supposing that at each moment the *ego* is something more than the aggregate of feelings and ideas, actual and nascent, which then exists."[24] Here, of course, we again reach ultimate and fundamental differences of view. We deny that the *ego* is merely an aggregate or a series of states, and we ask for proof. The unity of consciousness refutes such a doctrine. If there were not a permanent abiding principle or subject, underlying our transient conscious states, then memory, reflexion, comparison, and reasoning would be utterly impossible.[25]

9. Mr. Spencer urges: "Either the *ego* which is supposed to determine or will the action is present in consciousness, or it is not. If it is something which is not present in consciousness, it is something of which we are unconscious—something therefore of whose existence we neither have nor can have any evidence. If it is present, then, as it is ever present, it can be at each moment nothing else than the state of consciousness, simple or compound, passing at that moment."[26]

Dilemmatic arguments like the above, not infrequent in Mr. Spencer's books, often cause admirers of that distinguished writer to regret that among the wide range of studies embraced by him, the elements of Logic do not seem to have been included. From neither of the alternatives does the asserted conclusion follow, and the legitimate inference from the second is actually the direct contradictory of that conclusion. Although the *ego* were not presented in the consciousness of successive states, yet the possibility of *memory* and *reflexion* would afford irresistible evidence of such a permanent subject. But if the *ego* were continually present in consciousness, if amid the transient mental states which form the current of our psychical life we were conscious of the *ego* or self as ever present, then assuredly it could not be any mere passing state, simple or compound. Surely the fact of being conscious of a permanent self cannot demonstrate that it is merely transitory. Yet this is literally Mr. Spencer's conclusion. The syllogism, however, contains other blunders. Suppose the *ego*, or self, to determine our volitions, it does not necessarily follow that the *ego* must be *always* distinctly realized in consciousness. At most this need only be on the occasions of the exercise of free or deliberate volition. As a matter of fact, the vividness with which the *ego* is apprehended varies in different mental attitudes; but the mere possibility that any past act can be recalled and identified, that we can by any reflex act cognize a mental state *as a state of self*, demonstrates that the *ego* is something over and above the "passing" states.

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[23] Dr. Bain, *Mental Science*, p. 402.

[24] Mr. Spencer, *Principles of Psychology*, § 219.

[25] Cf. c. xvii.

[26] Mr. Spencer, § 219.

B. METAPHYSICAL OBJECTIONS.—1. "Nothing can begin without a cause; but a free volition has no cause; therefore it is impossible." We grant the major premiss, but deny the minor. The *ego*, or self, is the cause, and a free cause. To call a free volition a "motiveless act," is also absurd. A motive is the apprehension of a desirable end, and every rational volition must of course aim at some such end; but our freedom consists in our not being inevitably determined to one particular end. The will can choose which motive is to prevail. Though it follow the weaker attraction, it is not motiveless.

2. Free-will is asserted to be in conflict with the *Law of Causation*. The law of causation is thus expressed by Dr. Bain: "Every event is uniformly pre-

ceded by another event; or, To every event there is some antecedent which happening it happens."[27]

In the phenomenalist account of this law there is a lamentable confusion of two distinct truths of quite different orders. The one is the *principle of causality*—"nothing can begin to exist without a cause;" the other, the *law of the uniformity of nature*—"the same causes produce the same effects," or, "the laws of nature are constant." The former is a necessary metaphysical principle, and we have explained its bearing on free volitions in the previous answer. The latter generalization is a contingent truth which we can easily conceive reversed. Suppose now that uniformity was proved from experience in the region of physical science—a task which the Empirical Philosophy is utterly unable to accomplish. There would yet not have been made a single step towards the demonstration of uniformity within the sphere of mind, where the phenomena are of an utterly opposite character. Again, if within the total assemblage of mental states we find the law to generally prevail, the inference as to its universality may be more or less probable until our internal experience brings before us a distinct exception. As soon as this occurs—and our illustrations we consider have established the fact—*a priori* probability becomes worthless, and our *inductio per enumerationem simplicem* falls to the ground. The truth is, that though the law of uniformity may govern the subsequent series of events proceeding from an originating cause, it does not regulate the primary originating cause itself.[28]

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[27] Dr. Bain's *Logic*, Vol. I p 27. Cf. also p. 226, and Mill's *Logic*, Bk III c v § 2 Mill endeavoured, and as is now generally admitted unsuccessfully, to prove this law. For an effective confutation of Mill's reasoning, cf. *Logic* (present series), pp 80—88. Dr. Bain abandons the attempt as hopeless On the confusion of the principle of causality with the uniformity of nature, cf Fowler's *Inductive Logic*, pp. 24—26, also, Professor Knight's *Hume*, pp. 101—163.

[28] An admirable exposure of the futility of this difficulty was given in an article by Father Herbert Lucas in *The Month*, February, 1877, pp 248, seq We wish to express our obligations throughout the present chapter to the three valuable papers on the subject of Free-will contributed by him to that periodical during that year

C. OBJECTIONS DRAWN FROM PHYSIOLOGY, PHYSICS, AND STATISTICS.—*Physiology.*—According to some physiologists, *e.g.*, Dr. Maudsley, G. H. Lewes, and Luys, Physiology has disproved the freedom of the Will. This science, it is asserted, has established that the connexion between bodily and mental states is so intimate and continuous that each modification of the mind is inexorably conditioned by some definite molecular change in the substance of the organism. But since the uniformity is rigid among the corporeal changes, it must be equally so among the mental correlates. To this we may reply, that equally distinguished authorities on physiological science deny any such conflict as is alleged between Free-will and that science.[20] As regards the facts asserted we admit, of course, a very close dependence of mind on body,—the scholastic doctrine that the soul is the form of the body always laid stress on this truth,—but we emphatically deny that anything approaching to the shadow of a proof that every act of the former is conditioned and determined by the latter has been made out.

Physics.—The establishment of the Law of the Conservation of Energy—"the sum of the kinetic and potential energies in the universe remains constant"—is asserted to have disproved Free-will. The admission of Free-will, it is alleged, introduces innumerable fountains of energy of an utterly incalculable character, which would change indefinitely the existing quantum. Here we may reply, in the first place, the Will does not *create* but *direct* the application of energy already in existence. Again, the animal organism is "a delicately constructed machine" of such a kind that "in the human being a very small and obscure transmutation of energy in the mysterious brain-chamber may determine some violent motion."[80] Now, as regards the living organism, it cannot be pretended that the Law of the Conservation of Energy has been, or indeed can be, verified in any but an approximate manner. Consequently, the infinitesimal increments due to the slight interferences of psychical influence necessary for all the requirements of Free-will would be utterly inappreciable. The testimony of consciousness thus stands uncontradicted by the great generalization of Physics.[81]

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[20] See the writings of Beale, Carpenter, and Ladd. Dr. Carpenter's *Mental Physiology* is replete with excellent observations on this subject. See especially Introduction to 4th Edit. pp xiv. seq. "Nothing of scientific value which Physiological Psychology has to offer, throws any clear light on the problem of the 'freedom of the will.' . . . When M Luys, for example, maintains that to imagine 'we think of an object by a spontaneous effort of the mind is an *illusion*,' and that, in fact, the object is only forced on us by the cunning conjurer, the brain, 'because the cell-territory where that object resides has been previously set vibrating in the brain,' he is controverting a plain and universal dictum of consciousness by his private and unverifiable hypothesis on a question of cerebral Physiology where experts and novices are alike ignorant. Physiology neither disproves nor verifies the postulate of free-will; accordingly this postulate must be raised and discussed on other grounds." (Ladd's *Physiological Psychology*, p 544)

Statistics.—It is stated that *Free-will* is disproved by the existence of the Moral sciences. Buckle, who is the classical author on this line of attack, maintains that the actions of men "vary in obedience to the changes in the surrounding society, . . . that such variations are the result of large and general causes which, working upon the aggregate of society, must produce certain consequences without regard to the volition of those particular men of whom the society is composed." Logically enough, he concludes that "suicide is merely the product of the general conditions of society, and the individual felon only carries into effect what is a necessary consequence of preceding circumstances." This is proved by the evidence of statistics, "a branch of knowledge which, though still in its infancy, has already thrown more light on the study of human nature than all the sciences put together."[82] The same objection adopted by Mill, Dr. Bain, and most other determinists, is evidently considered by them to be one of their most irresistible arguments. Nevertheless, after a careful examination it appears to us singularly weak and superficial, and we are convinced that some of the acute minds who have advocated it would never have been misled as regards its value, if Necessarianism was not already a foregone conclusion. We will first recall the precise point at issue. The defenders of moral freedom maintain that within a certain limited sphere man's volition, and consequently his action, is not inevitably predetermined by his character and surroundings. They admit: (*a*) that his spontaneous or indeliberate acts are merely the outcome of motive and disposition; (*b*) that he can never act without some motive—the most common forms of which being immediate pleasure, permanent self-interest, and duty; (*c*) that even in deliberate or free actions he is largely *influenced*, though not *constrained*, by superior force of attraction Thus, a man accustomed to give way to a particular temptation, will very probably yield again—though of course *freely*—when it recurs. It is now at once evident how easily general uniformity, even in individual conduct, is reconcilable with the libertarian view. Furthermore, statistics deal with societies of men, not with the particular human being, and there is no contradiction in the existence of regularity among actions of the community taken as a whole, while the members freely vary. "It is precisely because individual actions are not reducible to any fixed law, or capable of representation by any numerical calculation, that statistical averages acquire their value as substitutes."[83]

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[80] Cf. *The Unseen Universe*, § 181.

[81] Cf. Father Lucas, loc. cit pp. 249—252. For two other modes of reconciling Free-will with even the most exact realization of the law, cf. *The Unseen Universe*, §§ 111, 112, 229, where the views of Clerk Maxwell, Balfour Stewart, and Professor Tait on the subject will be found. Lotze, *Microcosmus*, Bk. II. c. v. n. 5, has some good remarks on the same point.

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[82] *History of Civilization in England*, pp 24, 30.

[83] Mansel, *Prolegomena Logica*, p. 343 The inefficiency of the statistic objection is well shown from two widely opposed views of Causation by Dr. Venn and Dr Martineau. Dr. Venn points out: (1) That there is a certain illegitimate gain in the apparent force of the difficulty by the selection of sensational cases, such as the regularity of suicides, misdirected letters, and the like. The emotional shock of surprise aroused by such discoveries makes us

D. Theological Objection: Divine Prescience and Free-will.—It is argued that God could not foresee with certainty our actions were they free. This is properly a theological difficulty, and for an adequate answer we refer to the volume of this series on *Natural Theology*. We may, however, point out that it is inaccurate in strict language to speak of God *foreseeing* events to come. With Him it is a question of *actual insight*, of *intuitive vision*. The past and future are both alike ever present to His infinite changeless intelligence. Not only all that has been and all that will be, but even all events that would occur under any conceivable circumstances lie unfolded before His omniscient mind. It is true that we cannot imagine the nature of such an eternal intelligence, any

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mistake their logical value, which does not exceed that of regularity in meals, or in wearing clothes. (2) Mere uniformity of an *average* proves nothing as to invariable determination of the *individual* action. Were there a purely *random* or *chance* factor among the agencies at work, this would not affect deductions from the theory of Probability. If a sufficiently large number of observations were taken we would be justified in expecting that the *random* occurrences on the positive and negative sides would be approximately equal. Thus in tossing a collection of pennies, whether they were completely necessitated or partly free we should expect a uniform average of heads and tails in the long run. (3) "The antecedents and consequents in the case of our volitions must clearly be supposed to be very nearly immediately in succession, if anything approaching to causation is to be established." But nothing of the kind is or can be attempted in statistical averages. It is probable that no two of the three hundred suicides in London last year were precisely alike in antecedents, and very few, if any, of this year resembled in all details those of last year. If it could, for instance, be shown that three hundred individuals of last year, and again of this year, under the action of *three hundred precisely similar sheaves of motives* put an end to their lives, then the determinist would have made some progress. The statistician does not attempt to show such similarity. "In fact, instead of having secured our A and B (motive and volition) here in closest intimacy of succession to one another, we find them separated by a considerable interval, often indeed we merely have an A or a B by itself." (Venn, *Logic of Chance*, c. ix §§ 16–21.) On the same subject cf. Dr Martineau, *A Study of Religion*, II. pp. 255–272. We need scarcely say that with his theological explanation later on of the relation of God's foreknowledge to our free volitions, we do not agree.

more than the snail which takes a week to cross a field, can conceive the human vision that simultaneously apprehends in the flash of a single glance leagues of a landscape; but this does not disprove the fact. *Logical dependence* in the order of *knowledge* is not the same thing as *causal dependence* in the ontological order, that of *being*. Our certainty regarding past or present volitions of ourselves or of others does not affect their freedom; neither does God's vision of our future free actions. He sees them because they *will*, though freely, occur, but their occurrence is not necessitated by the certainty of His knowledge.

E. FINALLY, it is asserted that if volition is not as rigidly ruled by the law of Uniform Causation as other events, then a *science* of Psychology is impossible. The objection possesses about equal force with that which alleges that if some miracles are admitted to have occurred in the Life of our Lord, or of His Saints, all physical science is thereby annihilated. Mr. Spencer sums up the whole case thus: "To reduce the general question to its simplest form: Psychical changes either conform to law or they do not. If they do not conform to law, this work in common with all works on the subject, is sheer nonsense: no science of Psychology is possible. If they do conform to law there cannot be any such thing as Free-will."[34] The alternative is, of course, especially as regards Mr. Spencer's portly volumes, awful to contemplate. Such a calamity is not, however, inevitable. It is either a misrepresentation or a misconception of the doctrine to affirm that the reality of Free-will can seriously affect the scientific character of Empirical Psychology. There still may remain sensibility, imagination, memory, intellectual cognition, sensuous appetite, automatic or involuntary movement, habit, and the emotions, as law-abiding as the phenomena of the physical world. With such wide dominions under the sway of uniformity, and with the Free-will itself subject to the conditions we have enumerated, all anxiety as regards the reconciliation of Freedom with Psychological science disappears.

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[34] *Principles of Psych.* I. § 220.

Readings on the Will.—St. Thomas, *Sum.* I. qq. 82. 83. The best treatment of the subject to be found in English is the admirable series of Essays on Free-will by Dr. W. G. Ward, in the *Dublin Review* from 1874—1881. These are republished in his *Philosophy of Theism,* as Nos. 6, 7, 9, 10, 11, 17. An exhaustive examination of the difficulties from the side of modern science will be found in the essays by Father Lucas in *The Month,* 1877. See also Martineau, *A Study of Religion,* Vol. II. pp 195—328. M. Charles, *Psychologie,* c. xxv. handles some objections skilfully. Chapter ix. of Dr. Carpenter's *Mental Physiology* treats the subject well in its relation to Attention His introductory essay to the fourth and succeeding editions, contains also a good defence of Free-will. The Physiological conditions of voluntary activity are admirably treated by Prof. Ladd, op cit pp. 525—544. Cf. especially pp. 539—544, where the bearing of Physiological science on Free-will is expounded. Cf. also Mivart, *On Truth,* c. xviii.

CHAPTER XIX.

THE EMOTIONS. EMOTIONAL AND RATIONAL LANGUAGE.

WE have spoken briefly in an earlier chapter of the nature and conditions of the phenomenon of Feeling, understood as the agreeable or disagreeable character of mental energies generally. The present place we deem the most suitable for saying a few words on Feeling, interpreted as synonymous with the Emotions. It is, as we have already remarked, probably in virtue of the impressiveness of this latter class of states, that a third faculty has been superadded to those of Cognition and Appetency to complete the original furniture of the mind. Nevertheless, what effort at argument has been made in favour of such a power is mainly based on the peculiar nature of Feeling understood in the former sense of pleasure and pain. There is no attempt to show how such states as anger, love, hope, and curiosity, are to be reduced to the mere capacity for pleasure and pain. Yet, if a third faculty is to be invented because this latter capacity is supposed to be *sui generis*, and if the Emotions are to be grouped under it, the reason for such a proceeding must be assigned. It ought to be shown that all the psychical acts ascribed to such a power do *de facto* pertain to it rather than to the cognitive or appetitive faculties. Many of the emotions, indeed, are of a pleasurable or painful character; but so are several cognitive and appetitive experiences, yet it is not pretended that this circumstance justifies us in considering the latter to be phenomena of Feeling. Accordingly, the mere fact that the term *feeling* is applied to a number of complex and heterogeneous states, affords no solid ground for the erection of this third faculty. This will become still more apparent as we advance.

SCHOLASTIC VIEW OF EMOTION.—The schoolmen discussed the Emotions, in so far as they handled them at all, in their treatment of the *Passions*. These latter they defined as intense excitations of the appetitive faculty. They recognized eleven chief forms, which they divided into two great classes, called the *passiones concupiscibiles* and the *passiones irascibiles*.[1] In the former class the object of the mental state acts directly on the faculty as agreeable or repugnant in itself, whilst the object of the irascible appetite is apprehended subject to some condition of difficulty or danger. In scholastic phraseology the object of the *appetitus* or *passio concupiscibilis* is *bonum vel malum simpliciter:* that of the *appetitus irascibilis* is *bonum vel malum arduum*. Six *passiones concupiscibiles* were enumerated,—joy or delight and sadness, desire and aversion or abhorrence, love and hatred. These are the affections of the appetitive faculty viewed as present, future, and absolute, or without any reference to time. The five *passiones irascibiles* are hope and despair, courage and fear, and anger. The first pair of emotions are the acts elicited by the appetitive side of the mind in presence of arduous good, according as the difficulty of attainment is apprehended as slight or insuperable. *Courage* and *fear* are the feelings awakened by threatening evil viewed as more or less avoidable; whilst *anger* is aroused by actually present evil.

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[1] Readers of Dr. Bain (*Emotions and Will*, 3rd Edit. pp. 72, seq.) will remember how frequently he reiterates the statement that *love* and *anger* are the two most fundamental types of emotion, thus unconsciously recognizing—if he has not borrowed the information—the validity of the scholastic division. Love and anger are positive and negative phases of appetitive activity. Fear pertains to the latter Consequently, in admitting the derivative character of the other emotions, he often seems to be on the verge of discovering the truth, familiar to the schoolmen, that these states are only affections of the appetitive faculty taken in its widest sense.

Whatever view be taken with regard to this scheme as a scientific classification, but little reflexion is required to see that the several emotions mentioned are really phenomena of the appetitive activity of the mind. Appetency embraces the conscious tendency *from* evil, as well as *towards* good; for these two inclinations are only negative and positive phases of the same energy. But this faculty must also be the root of the mental states arising in the actual presence of good or ill. The words *desire* and *appetite*, indeed, bring more prominently before us the notion of an absent good, since it is in striving after such an object this power most impressively manifests itself. Still, it cannot be maintained that it is by a different faculty we stretch after or yearn for a distant joy, and take complacency in its actual possession.[2] It is not by three separate powers, but by one and the same, that we dislike evil in general, shrink from its approach, and are sad in its presence. *Hope* is similarly a desire to attain an arduous good, unsteadied by a cognitive element of doubt; whilst *despair* is a painful prostration resulting from a negative phase of the same activity. The affinity of *courage* and *fear* to the two former states, and their like derivation from the positive and negative forms of appetitive activity, are obvious. Both involve intellectual appreciation of the threatening danger, but whilst in the one case the will is strong and determined, in the other it shrinks back in feeble irresolution. *Anger* implies at once dislike and desire of revenge.[3]

Amongst the feelings which have chiefly attracted the attention of modern psychologists are the following: (1) those peculiarly related to self-love; (2) those of an altruistic or unselfish character; (3) the sense of power; (4) emotions of change, and of intellectual activity; (5) the æsthetic emotions; (6) the moral sentiment.

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[2] "If it is the appetitive faculty which 'desires' the good, seeks it, stretches after it and longs for it, will the seizure, the embracing, and the retention of an attained good—that is, enjoyment, delight—not be essentially then an act of the same faculty? If a piece of iron is brought close to a magnet, the latter will attract it to itself and hold it fast. Did it ever occur to a physicist in his senses to postulate two essentially different forces in the magnet, one by which it attracts, and another by which it keeps fast? . . . Joy over the recovery of a near relative is nothing else than an appetitive affection which has embraced its object. Pain, on the other hand, at the annoyance of a much esteemed old man is on the contrary a reverse or negative activity of appetency in regard to an object actually present but repugnant to its inclination." (Jungmann, *Das Gemüth*, pp. 192, 193.)

[3] For a fuller treatment on scholastic lines of the leading passions, we refer the reader to the volume of the present series on *Moral Philosophy*, Pt. I. c. iv.

SELF-REGARDING EMOTIONS.—*Emotions of self* take a variety of shapes. The pleasurable forms appear as self-esteem, self-complacency, self-commiseration, and the like, whilst among painful feelings are remorse, self-condemnation, and shame. They are all different phases of self-love, and so products of the Appetitive Faculty. There is in man an instinctive desire of his own happiness, and consequently satisfaction in contemplating the possession of whatever increases it. Every excellence possessed, every good attained, every praiseworthy action done, forms agreeable food for self-reflexion.

The special form of self-love exhibited in an inordinate desire of our own excellence is termed *pride.* This vice is not self-confidence, nor the consciousness of any virtue we may happen to possess, nor even the confession to others that we do possess such virtues. These may indeed be symptoms, but the essence of the vice lies in the craving for undue superiority. Closely related to pride is *vanity,* or vainglory. The primary meaning of this term is inordinate desire for glory, that is for fame or esteem among men. In ordinary language vanity usually signifies either the seeking of praise on account of some trifling or paltry performance not really worthy of honour, or the act of setting an exaggerated value on the varying standard of human approbation. Vanity is thus incompatible with true greatness, which must be capable of rightly estimating both personal gifts and the fickle judgments of other men. In *self-commiseration* we indulge in a sweet feeling of pity over the injustice of our position, or the unfortunate circumstances in which we have been placed. There is a peculiar joy in the possession of a grievance which often causes its removal to leave an "aching void." But the trial must, in such cases, have been of a nature to be easily appreciated by our neighbours. The explanation of the state would seem to be, that the satisfaction derived from the imagined interest or importance our particular trouble gives us in the eyes of those around us, and the agreeable and inexhaustible fund of conversation it supplies, more than counterbalance the inconvenience.

In *remorse* and *shame* we have painful species of self-reflexion. In the former there is sorrow founded on the apprehension of the ill-consequences of our past action, or the realization of its wickedness. It may, or may not, be mingled with shame. The most important element in this latter state is the pain caused by the representation of the disapproval or contempt of others; as their admiration is agreeable, their disesteem is mortifying. It should be noticed that shame is in itself essentially different from moral self-condemnation. Our contrition for sinful action may indeed be mingled with shame at the appearance our conduct presents in the eyes of our fellow-men; but those writers who would resolve the moral sentiment into pure shame ignore most important facts. A man may experience the keenest self-condemnation from an action such as a duel, in which social approval was completely with him, whilst he suffers a torturing consciousness in consequence of some involuntary act or some trifling piece of ill-manners, which he knows has not the faintest shadow of moral taint about it.

ALTRUISTIC EMOTIONS.—The most striking form of *benevolent* or *unselfish* emotion is that of *sympathy.* Sympathy literally means *feeling with* others, benevolence *wishing well to* others. That there are naturally in man non-selfish impulses is shown especially by his possession of benevolent and sympathetic instincts. Hobbes, indeed, attempted to reduce even these to far-sighted selfishness,[4] but the general tendency of the present representatives of his school is to admit natural altruistic inclinations. That sympathy is an innate unselfish impulse, or rather a native disposition, is shown by the prompt manner in which the feeling arises on the contemplation of another's suffering; by the entire absence of any prospect of gain to ourselves in return for our compassion; by the real self-sacrifice to which it often successfully urges; and by the universality of its range,—moving us to compassionate the pains of brute animals, the sorrows of strangers and historical personages, and even still more powerfully to grieve over the imaginary woes of the creations of the dramatist and novelist.

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[4] He defines *Pity* as, *Grief for the calamity of another, arising from the imagination of the like calamity befalling one's self.*

The two chief features of the state of sympathy are a lively representation and an active appropriation of the feelings of others. There is both a projection of self into the situation of the sufferer, and a voluntary acceptance of his grief. In compassion there is a free affectionate adoption of the pain as our own, not a shrinking dislike for it through fear of its infliction upon us. We can sympathize with trials and joys of those differing from us in age, sex, or condition, and which it is absolutely impossible should occur to ourselves. At the same time, since sympathy involves the realization of the feelings of another being, some experience of a kindred nature is presupposed. And herein lies the cognitive factor in the emotion. The intensity of our sympathy will thus be conditioned both by the range of our actual knowledge, and by our capacity of imagination. Consequently, its force diminishes when the feeling is of a kind remote from our experience. We can all commiserate physical pain, but the keen sufferings of refined or scrupulous minds are often incomprehensible to ruder natures.

Equally important with the element of cognition involved in the act of compassion is that of affection. The accepted signification of the term *antipathy*, as equivalent to dislike, shows this. Anger and hatred suspend for the time our power of pity. The intensity of sympathy is, *ceteris paribus*, in proportion to our love for the object of the emotion. This fine susceptibility of human nature would also seem to be less in unison with the energetic than with the reflexive or contemplative character; though the former disposition is more fertile in the practical fruits of benevolence. Since the Christian era, the faculty has grown both in range and depth along with the mental and moral development of the race. The great increase in the exercise of the imagination arising from the universal habit of reading, so new in the history of mankind, must have an immense effect in enlarging the normal power of the fancy. To this cause more than to any other, ought to be traced the present popular indignation against various forms of cruelty towards which men seemed almost insensible a few centuries ago. Sympathy in the full sense comprehends fellow-feeling in the joy of another, as well as compassion over his pain. The former is a more completely disinterested state, and far harder to reach, as the neutralizing action of jealousy and envy, even in a faint form, is able to destroy this truly unselfish feeling. This, of course, does not occur in the case of pity.

EMOTION OF POWER.—The *sense of power* is another feeling about which much has been written by modern psychologists.[5] The term "sense" is of course not here used in the strict signification of organic faculty, but as equivalent to an emotional form of consciousness of an abstract character. We must distinguish two elements or grades in this sentiment,—the *desire* of power, and the *complacent pleasure* in its actual possession. It is in this latter stage that we have the complete emotion, and the luxury of the state consists in the conscious satisfaction of a desire of wide range.

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[5] Cf. Stewart, *Active and Moral Powers*, Bk. I. c. ii. **This chapter is amongst the very best to be found on the subject**

The longing for power first exhibits itself in the simple shape of the impulse towards the exercise of our physical faculties. Now, we have already shown it to be a universal law of our being that appropriate action of our several energies is agreeable. Consequently, although the original instinct is of the nature of a spontaneous impulse towards activity without the representation of any pleasure to be attained, yet, afterwards, the memory and idea of this resulting gratification can come to form a co-efficient in the impulse, and so increase its force. The child manifests this inclination towards the exercise of its faculties in the constant and vigorous action of its limbs and voice. It evidently rejoices in its power of exerting its members and creating surprising effects in the world around.

Advancing in age, the boy delights in the still more effective use of his limbs, in running, jumping, in throwing stones, and in the skilful handling of his bat, his racquet, his rod, and his gun. These instruments are now as much part of himself as his hands, and there arises in him a peculiar elation due to the extension of personal efficiency in hitting a distant mark. The enjoyment at this period is enriched by the satisfaction of *successful rivalry*. The pleasure of being superior to others and of manifesting this superiority, forms so substantial an ingredient in the whole state, that some psychologists have considered the exultation of conquest to make up the entire emotion. Undoubtedly, the happiness of jumping two inches higher, or of throwing a stone two yards further than any of our immediate neighbours, is of a peculiarly exquisite nature in a certain stage of human existence, and the quantum of felicity attached to the two inches or yards in question, vastly exceeds that pertaining to any other two inches or yards; still it is not equivalent to the whole remaining aggregate, and it is a psychological error to place the totality of the emotion of power in the sense of successful competition. The exercise of the faculties themselves is essentially pleasant, and by their improvement many more or less remote pleasures involving no element of rivalry can be attained.

Every advance in the efficiency of our command over our faculties means enlarged potentialities of satisfaction, and the consciousness of such increased efficiency is agreeable. As the bat, gun, or horse becomes part of our personality, its special perfections curiously afford a joy similar to that generated by the knowledge of our own physical or intellectual superiority over our neighbours. Even the fact that our tailor has cut our coat in a particular way, that a pet rabbit winks one of his eyes in an eccentric manner, or that a pig which we have purchased surpasses in fatness those of our less fortunate acquaintances, carries with it in our imagination an undefinable dignity, which, blending with our other excellences, helps to swell this grateful emotion of self-importance. When, instead of material implements, other men become the instruments of our will, the range of our power is at once indefinitely extended; and it is in the desire to gain sway over our fellow-creatures, whether by intellectual labour, by eloquence, by literary work, or by military force, that the passion is seen in its most striking forms; and it is in success in these directions that the emotion assumes its most luxuriant and its most dangerous character.

EMOTIONS OF CHANGE, AND OF INTELLECTUAL ACTIVITY.—The mental states of *novelty*, *surprise*, and *wonder*, called by Dr. Bain,[6] *feelings of relativity*, also play an important part in this department of the mind. The agreeable feeling of *novelty* is a particular instance of the pleasure due to exercise of the mental energies in general. The enjoyment of every activity is highest whilst fresh, and gradually tones down as the faculty becomes habituated to the action of the stimulus. Accordingly, transition from the exertion of one power to that of another, or even variation in the quality of a mental state must, *cæteris paribus*, be agreeable. Since the number of possible experiences is limited and the list of absolute novelties soon exhausted, the advantage of change in employments is obvious. The recurrence of a former mental state after an interval of time may be attended with almost as much pleasure as that of its first appearance; and occasionally, as in the case of old familiar tunes, previous acquaintance largely enriches the emotion.

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[6] Dr. Bain's discussion of the emotions is decidedly the ablest part of his work, although, even here, his erroneous philosophical views often seriously lessen the value of his analysis.

In *surprise* there is something in addition to *novelty*. In the latter state there is change, in the former there is besides a certain shock of unexpectedness. Practically, of course, the two feelings shade into each other—marked novelties producing surprise; but the characteristic feature of the latter state is the temporary perturbation of the movement of thought, owing to the sudden appearance of an unlooked-for idea which does not at once coalesce with the existing current. In itself such a dislocation would be disagreeable rather than the reverse, but the pleasure springing from a fresh energy prevents surprise being classed as a universally painful state. Dr. Bain allots it to his group of so-called "neutral" feelings.

Wonder is a more complex emotion than surprise. It requires a certain magnitude or greatness as well as strangeness in the new event, which causes a failure of the effort to understand or classify that event with our past experiences. When the novel object is of such a completely unfamiliar kind as to convince us that it is beyond our comprehension, the mind is thrown into a condition of conscious stupefaction, which is the purest form of astonishment. The soul, however, cannot long persist in such an attitude, and the natural inclination of the intellect impels it to try and bring this occurrence into harmony with others which we have observed. The native tendency of the mind to exert its powers when thus stimulated by the enigmatic, is the essentially rational attribute of *curiosity*. It is scarcely too much to say that this impulse holds a similarly important position in the domain of knowledge with that possessed by the instinct of self-preservation in the kingdom of physical life.[7]

Akin to the emotions just mentioned are those states which have sometimes been called *intellectual feelings*. Chief among them are the *logical feelings* of consistency and contradiction. These states are essentially cognitional; but pleasure or pain forms such a very prominent ingredient that the term *feeling* is frequently applied to them. They afford the best example of strictly intellectual sentiments, and are of a spiritual or supra-sensuous character. The consciousness of the irreconcilability of apparently independent cognitions is distinctly disagreeable. We are dimly aware of an internal state of strain or contention; and we cannot rest till we effect agreement between the discordant forces. The discovery of new truth, the bringing of fresh facts under old generalizations, at once satiates the intellectual yearning for unity and gratifies our sense of power. There is a very real joy in detecting hitherto unperceived relations of similarity, whether it be in the solution of a mathematical problem, the discovery of a law of physics, the invention of a happy metaphor, or the guessing of a riddle.

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[7] Aristotle, *Metaph*. Bk. I. c. ii. teaches that *Wonder* is the starting-point of Philosophy. Plato, Plutarch, Bacon, and other thoughtful minds have loved to dwell on the importance of this mental state. Modern positivists are found to adopt a contemptuous tone in speaking on the subject, but one is surprised to discover such superficiality in Mill

This kind of enjoyment is one of the main elements in the higher species of those pleasures which constitute the *emotions of pursuit.* This term has been employed to denote the agreeable excitement attendant on certain kinds of out-door sport, games of chance, and interest in the plot of a novel. There is in such exercises novelty, the satisfaction due to the play of our faculties, and a pleasing interest aroused by the uncertainty of the result, which gives much food to imagination and intellect. If the stake is very heavy the agreeable character of the excitement disappears, and the state of doubt, resulting in anxiety and fear, may become extremely painful.

ÆSTHETIC EMOTIONS.—Another class of feelings which have been much studied by modern psychologists are the *æsthetic emotions.* The chief of these are the sentiments awakened by the contemplation of the *Beautiful* and the *Sublime.* Ontology is the branch of Philosophy to which the problem of the nature and objective conditions of Beauty properly belongs. But since the middle of last century discussion on this special subject has been so continuous that there has grown up a portentous body of speculation claiming the title of the *Science of Æsthetics.*[8] In this psychological treatise we will seek to analyze briefly the feelings aroused by the perception of the Beautiful, the Sublime, and the Ludicrous, and to point out the chief features in these realities themselves.

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[8] The reader desirous of acquiring a thorough acquaintance with this branch of knowledge will find an able and exhaustive treatment of the subject in the erudite work by J. Jungmann, S.J., *Æsthetik*, 2 vols. (Freiburg).

The epithet *beautiful* is applied to such widely different things as a sunset, a human face, a flower, a landscape, a musical symphony, a greyhound, a poem, a piece of architecture; and there may be awakened pleasing emotions by the consideration of any of these objects. The first and essential property, then, of beauty is that it *pleases*. In most cases the satisfaction aroused involves two elements—the one sensuous, the other intellectual. The lower is the result partly of the harmonious action of an external organic faculty, such as sight or hearing, partly of that of the imagination. Thus we describe particular hues as beautiful, certain sounds as charming, and in many of the examples just mentioned the important part played by the quality of the organic stimulus is evident.

Along with this satisfaction due to sensation, there is also usually an element of gratification dependent on the exercise of the imagination. We have already shown in our chapter on the development of sensuous perception what a large part the reproductive activity of consciousness plays even in seemingly simple cognitions, such as those of a house or of a tree. Consequently, the pleasure of the effect must be attributed to the agreeable operation of both the presentative and the representative faculties of the lower order. The combined energies of the external and internal senses are thus of themselves capable of accounting for much of the delight aroused by the contemplation of beautiful objects, and we think those writers in error who would deny or minimize the reality of sensible beauty. Visual, auditory, and motor sensations, both actual and ideal, conspire according to their quality, their intensity, and their harmonious combinations to enrich the pleasurable sentiment of admiration.

Nevertheless, human appreciation of Beauty is essentially rational, and the importance of intellect in this department of cognition is shown by the absence of æsthetic tastes in irrational animals. The most universal feature in the various kinds of beautiful or pleasing objects, the generality of philosophers have held to consist of *unity amid variety;* and the apprehension of this perfection is an intellectual act. Symmetry, order, fitness, harmony, and the like are but special forms of this unity. The suitable proportions of the lineaments of the face, of the limbs of an animal, and of the constituent portions of a building; the admirable co-ordination of the several parts of a flower; and the unity of ideas which should run through a musical air, a poem, or a drama are all but varying expressions of the *one amid the manifold.* Monotony is painful; sameness wearies the faculties. On the other hand, chaotic multiplicity, disorderly change overpowers and prevents us from getting a coherent grasp of the confused mass before us. When, however, our energies are wakened into life by a rich variety of stimulus, whilst at the same time the presence of some central unity enables us to hold the several parts together with ease, there is produced in the mind a luxurious feeling of delight.[9]

A particular manifestation of this unity of thought in a work of art is *utility*. The mind is gratified by seeing how an object is adapted to the purpose for which it is intended. The structure of the greyhound thus embodies the idea of speed: the English dray-horse that of strength. The charm of a pillar in a piece of architecture depends as much on its obvious utility and fitness as on its own beauty, and the fundamental rule of Gothic art, that *no ornament is to appear for the sake of ornament*, is but a practical application of this psychological law. Objects which please indirectly as in this way subservient to some ulterior end are said to exhibit *relative* or *dependent* beauty; those which charm of themselves exemplify *absolute*, *intrinsic*, or *independent* beauty. A flower taken as a whole may be described as absolutely beautiful, whilst the delight awakened by contemplating the fitness of its parts is an effect of dependent beauty.

The extent and importance of this second kind of beauty gave occasion at the end of last century to the advocates of Associationism to attempt the explanation of all forms of beauty by that principle. A plain of ripe waving corn is beautiful in this view because it suggests peace and plenty: a ruined castle because it recalls deeds of chivalry and prowess in past times. The influence of Association in awakening agreeable emotions, and in giving an accidental charm to indifferent objects is undoubtedly very great. The scenes of our childhood, familiar tunes, the rise and fall of fashions, and the rules of etiquette, all exhibit the beautifying force of this agency. Still it is a mistake to push the principle too far, and a sea-shell, a feather, or a landscape must often win the approval of the severest æsthetic judgment, apart from any extrinsic relation which it may possess.[10]

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[9] The *picturesque* wants the *unity* of beauty proper, but the disagreeable effect of mere disorder is prevented by the beauty of the separate elements; certain harmonies, too, usually pervade the irregularities.

Sight and hearing are the leading senses in the appreciation of beauty; but the experiences of the other faculties when represented in imagination can contribute much to the general effect, as is especially seen in poetic description. A consequence of beauty being mainly apprehended by the two higher senses is the disinterested character of the emotions aroused, and the communistic or shareable nature of æsthetic pleasures in general. The delight of admiration, though it may stimulate the desire of personal appropriation as a means to ulterior advantage, is not itself an egoistic affection. The joy awakened by the contemplation of a picture or a landscape, by a poem or a concert, is not diminished but increased by the partnership of other minds.

The emotion of the *Sublime*, though an agreeable consciousness, differs from that of the Beautiful.

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[10] Ruskin thus concisely states the flaw in the case of the advocates of *Associationism*: "Their arguments invariably involve one of these two syllogisms: Either Association gives pleasure, and Beauty gives pleasure, therefore Association is Beauty; or, the power of Association is stronger than the power of Beauty, therefore the power of Association *is* the power of Beauty." (*Modern Painters*, Vol. II. p. 31.)

The object of the former feeling is some kind or other of grandeur. Physical magnitude, immensity in force, space, or time, moral excellence displayed in searching trial, may all be characterized as sublime, and awaken the corresponding sentiment. The emotion involves *admiration*, *fear*, or *awe*, and a certain *sympathy* with the power manifested. Mere size is usually not sufficient to constitute sublimity. There must be a certain degree of perfection of form to give contemplation an agreeably stimulating character; and in this respect the emotion aroused is related to our enjoyment of the beautiful. But yet it is in the grandeur of the object that the chief element of sublimity consists, and this feature is so essential that even ugliness and wickedness of transcendent magnitude may sometimes generate a feeling of an almost admiring awe. The mind becomes aware of its feebleness and incapacity in the presence of immensity, whilst at the same time it is stimulated to endeavour to comprehend the object. Sublimity, like Beauty, is a revelation of the Divine attributes, but in the former the infinite incomprehensibility of God is brought more home to us. In our admiration of the sublime in human action little introspection is required to discover a thrill of sympathy with the agent. Although in the sentiment aroused by the contemplation of a piece of wild scenery, or of a storm at sea, this ingredient of fellow-feeling is not so easily detected, yet if we carefully reflect on the fact that what properly impresses us in these phenomena is the manifestation of a *Power*, we shall find that in the effort to realize to ourself such an energy we experience a faint vibration of sympathetic consciousness.[11]

The mental state aroused by contemplation of the *Ludicrous* is in striking contrast to that of the Sublime. In place of admiring awe and fear, we have joyous elation; instead of a shrinking consciousness of our own diminutiveness we explode in a burst of exuberant mirth. The fit of laughter, however, is only a physical movement which may be excited by purely physical stimuli, just as well as by the intellectual perception of the ridiculous; it is, of course, as distinct from the psychical state as the flow of blood to the face is from a feeling of shame, or an oral word from a rational thought.[12]

There has been much discussion as to what are the essential features of the ludicrous. According to Aristotle, the laughable is to be found in what is deformed or mean, yet incapable of producing pity, fear, anger, or any other strong emotion; and Mr. Herbert Spencer has not advanced the psychological analysis of this state much further. Incongruity, the latter writer teaches, is a prime constituent of the ridiculous, but this incongruity must not give rise to other powerful feelings. To see a fop tumble in the mud may cause us to laugh, whilst the fall of an old man whom we love arouses quite a different emotion. Hobbes defined laughter as "a sudden glory arising from the conception of some eminency in ourselves by comparison with the infirmity of others and with our own formerly." This view would place the essence of the ludicrous in a degradation of the object. It is true that the point of wit often consists in making others seem contemptible, and there is awakened a pleasurable consciousness of elation in ourselves by the contrast; but such a theory is very one-sided, and does not account for good-natured laughter, or for many forms of humour. Release from restraint is undoubtedly a very general condition of mirth, and the facility with which laughter can be excited by any unusual event when we have been for a time sustaining a dignified or solemn demeanour has often been noted. The cheapness of the wit directed against holy things which have been long held in reverence by mankind is thus obvious.[18]

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[11] Hamilton distinguishes clearly the character of the emotions of the *Sublime* and *Beautiful*: "The Beautiful awakens the mind to a soothing contemplation, the Sublime arouses it to strong emotion. The Beautiful attracts without repelling, whereas the Sublime at once does both; the Beautiful affords us a feeling of unmingled pleasure in the full and unimpeded activity of our cognitive powers, whereas our feeling of sublimity is a mingled one of pleasure and pain—of pleasure in the consciousness of strong energy, of pain in the consciousness that this energy is vain." (*Metaph.* Vol. II. pp. 512, 513.)

[12] Mr. Herbert Spencer frequently appears to forget this truth in his well-known article on the subject He seems to imagine that he has explained the sense of humour in man, when he has described certain hypothetical nervous discharges within the organism by which convulsive laughter may be effected. Lotze's words on the subject are *apropos*: "The shudder in presence of the sublime, and the laughter over comical incidents are unquestionably both produced, not by a transference of the physical excitations of our eyes to the nerves of the skin or the diaphragm, but by what is seen *being taken up into a world of thought* and estimated at the value belonging to it in the *rational connexion of things*. The mechanism of our life has annexed this corporeal expression to the mood of mind hence evolved, but the bodily expression would never of itself, without the understanding of what it presents, give rise to the mood." (*Microcosmus*, Vol. I. Bk. III. c. 3, § 4.)

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[18] Dr. M'Cosh's work, *The Emotions*, contains a good chapter on the Æsthetic Feelings, Bk. II. c. 3.

THE MORAL SENTIMENT.—As we have already treated at length of Conscience,[14] we need not here enter into the subject of the *Moral Sentiment.* We may, however, reassert the fact, that the apprehension of the morality of action is of the nature not of a feeling or emotion but of a rational cognition. Nevertheless, there is normally attached to the ethical intuition an emotional state which may be styled the *Moral Sentiment*, provided this term be properly understood. Reverence or awe in presence of a ruling authority, admiration for the good, natural love of right and dislike of wrong with a consequent feeling of approval or disapproval of the agent, all blend together in the constitution of the moral emotion. Instinctive impulses of benevolence and sympathy reinforce this feeling in certain directions; and judicious education, association, and the practice of virtue may, when they co-operate, give immense force to the moral sentiment, just as, when unfavourable, they may extinguish moral sensibility even if they cannot completely pervert the moral judgment.

Having now treated of the chief emotions, we would recall the truth on which we have so frequently insisted—that these states are not the acts of a third radically new faculty, but more or less complex forms of cognitional consciousness, blended with appetency taken in a wide sense. Love and aversion directed towards an object in actual or potential possession are principles of vast range, and when they have been carefully applied to the explanation of every feeling very little that is not an act of a cognitive power will remain. We may appropriately complete our treatment of these states with a citation from the work of Jungmann, devoted to the special subject of Feeling: "Modern Psychology is accustomed to treat of several species of Feeling and Feelings in its theory of the third Faculty. We accordingly have discussions regarding the sympathetic, intellectual, æsthetic, moral, and religious emotions; and also of the feeling or sense of right, of the beautiful, of the noble, and of moral good, or of æsthetic, moral, and religious feeling. If we admit no special Feeling-power, besides the faculties of Cognition and Conation, where shall we dispose of these states? It is not very difficult to find the right place for them, if we only get a clear notion of what is meant by these names. The sympathetic emotions are, in general, joy or sorrow over the weal or woe of others. Those feelings are styled 'Æsthetic' which are awakened in the soul in the presence of the æsthetic excellence of the creations of human genius. Under the phrase 'Intellectual Feelings' are signified those agreeable or disagreeable affections the cause and object of which is an activity of our intelligence in harmony or conflict with that intelligence. Finally, Moral and Religious Feelings are the appetencies of the soul in the presence of ethical good and ill with reference to the supernatural order. . . . The sense of the Beautiful and the Good, or Æsthetic and Moral sentiment, is not a (special) energy, not a faculty of the soul, but simply the first attribute of every created spirit, *Rationality*. Rationality embraces a two-fold element. Our soul is rational on the one hand because its understanding is necessarily determined by Eternal Wisdom's laws of knowledge; on the other, because there is impressed upon its appetency a natural bent towards what agrees with these laws of knowledge and with Uncreated Goodness, that is, towards the physically perfect and the ethically good, and therefore towards the Beautiful. This rationality, for reasons assigned elsewhere, does not manifest itself in all men in equal perfection, but in its essence it is present in all. Accordingly, in so far as no other agencies interfere, every man naturally knows and recognizes the Good, the Right, the Noble, the Beautiful, and the Great; towards these he is impelled, these he embraces, these he loves, these he enjoys. On the other hand, Wickedness, Meanness, Ugliness, are for every man the object of aversion and displeasure." [15]

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[14] Cf. pp. 320–331.

CLASSIFICATION OF THE EMOTIONS.—We have abstained in the present chapter from all attempt at a systematic classification of the emotions. We believe such classification to be impossible, and we think that a scheme falsely pretending to effect a scientific division of these mental states will do more harm than good. Most of the emotions are extremely complex products involving cognitive and appetitive, sensuous and intellectual ingredients of various kinds. Few of the emotions are of well-defined character, and the quality even of these is rarely pure. Feelings are invariably mingled or tinged with others of a different nature. They also shade into each other by imperceptible transitions. Moreover, they continually change in tone with the varying age, circumstances, and dispositions of man. As a consequence of all these properties, no satisfactory *fundamentum divisionis* can be selected; no table of *membra excludentia*, no arrangement exhibiting degrees of intrinsic affinity—in a word, no scheme embodying the rules or attaining the ends of logical classification, can be drawn up.

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[15] *Das Gemüth und das Gefühlsvermögen*, § 99.

Certain writers starting from some utterly unimportant extrinsic feature have elaborated plans possessing a degree of external symmetry, but lending no real assistance to the analytical study of the emotions. Others, on the contrary, adopting some hypothetical principle, which claims to penetrate to the root of mental life, have subjected many mental states to the most violent handling in order to squeeze them into the prescribed compartments. We thus get feelings which are closely akin in nature widely separated, and *vice versa*, because the particular principle chosen, however suitable in the division of other states, is utterly inappropriate when applied to these. In such a situation it seems to us decidedly the best course to frankly accept the facts. Classifications based on erroneous or superficial grounds may seriously mislead, whilst they can do no real good. They may, indeed, charm the fancy, as specimens of the author's ingenuity, but they will not further the interests of Psychology. We have, accordingly, merely taken up the chief feelings and pointed out their most prominent characteristics; and we consider Dr. Bain, in adopting a similar course, to have acted more wisely than the majority of modern English psychologists. In order to completely establish the justice of our view, it is only necessary to indicate a few of the schemes which have been advocated:

Spinoza recognizes as the three great primary types of passion: desire, joy, and sadness. They form the three first on the ordinary scholastic list, which we have already given, and did he but add the fourth—aversion or abhorrence—the scheme of the Dutch philosopher would have been at least as good as that of any of his successors. If he marks off joy from desire, he ought to separate aversion from sadness. Desire aims at future or absent good, the fruition of which is joy; the object of abhorrence or aversion is absent evil, and its presence creates sadness.

Reid, who to a certain extent followed the Peripatetic bipartite division of mental faculties, subdivided the active powers into the following classes:

I. Mechanical principles of action, such as instinct and habit.

II. Animal principles of action, including appetites; desires—of power, esteem, and knowledge; affections; passions; and dispositions.

III. Rational principles of action—prudence and the moral sense.

Stewart—the solitary instance, we believe, in which a disciple has followed his master in this subject—adopts substantially the same scheme.

The Scotch school were right in conceiving the emotions to be phases of appetency in its wide sense; but the list given does not really aim at scientific division.

Brown's classification of emotions runs thus:

I. Immediate—cheerfulness, melancholy, wonder, moral feeling, love, &c.

II. Retrospective—anger, gratitude, regret, gladness.

III. Prospective—the desires of knowledge, power, fame, &c.; also hopes and fears.

The principle of division here—that of time, is of very little importance from a psychological point of view. What is fundamentally the same feeling—*e.g.*, the moral sentiment—may be evoked by the contemplation of an object as future, present, or past. It is obviously unwise to separate these phases of the same emotion from each other, and to group them with feelings to which they have no affinity.

M. Garnier, adhering to the Aristotelian view of mental faculties, conceives feelings as inclinations, and classifies them according as they refer to:

I. Ourselves. II. Fellow-creatures. III. Things.

The defect here is akin to that of Brown. Psychologically the nature of the object of the emotion is a merely accidental consideration, and what is substantially the same emotion may be directed either towards self, towards other persons, or towards things.

Hamilton classifies feelings thus:

I.—Sensational Feelings.

1. Of the special senses.
2. Of cœnæsthesis, or vital sense.

II. The Mental or Internal Feelings or Sentiments:

1. Contemplative, or related to	(a) Self-consciousness — feelings of *ennui* and activity.
	(b) Imagination—feelings of order, symmetry, variety, &c.
	(c) Understanding—feelings of wit, truth, science, &c.
	(d) Imagination and understanding—the æsthetic feelings.
2. Practical, or related to	(a) Self-preservation—hunger, bodily pain, fear, repose, &c.
	(b) Enjoyment of existence—joy, fear, anxiety, sorrow.
	(c) Preservation of species—sexual love, social affection, sympathy, &c.
	(d) Self-perfection—intellectual and moral development.

This scheme is not worked out in detail by Hamilton, but it is easy to see that many feelings are classable under more than one head. Though we may ticket emotions under the separate names, imagination, understanding, and self-consciousness, these latter activities are too much intertwined to be of any assistance to us. Similarly, the tendencies towards self-preservation, enjoyment of existence, and self-perfection, are often only logically distinguishable.

Mr. Herbert Spencer, assuming the theory of Evolution, seeks to classify the emotions according to degree of development and complexity. This he considers to be determined by the order of their manifestation in the ascending grades of the animal kingdom, in different stages of human civilization, and in different periods of the individual's life. He accordingly divides all feelings into four great classes:

I. *Presentative feelings.*—Sensations considered as pleasurable or painful.

II. *Presentative-Representative.*—The majority of emotions so called. They are due to inherited experience: our sensations arouse vague representations of pleasurable or painful sensations experienced by our ancestors —*e.g.*, terror.

III. *Representative.*—Ideas of feelings of the previous class, excited in the imagination apart from external stimulus, *e.g.*, the pleasures of poetry.

IV. *Re-Representative.*—The most abstract, complex, and refined sentient states. Representations of representations of sensuous impressions. The sentiments of justice, of property, and the moral sentiment are illustrations.

As regards this scheme, in the first place the assumption on which it is based—that all our emotions are evolved out of sensuous impressions—may be simply denied. Proof of such a thesis would be a very big undertaking indeed, and Mr. Spencer does not seriously attempt it. The emotions of curiosity, surprise, the ludicrous, shame, logical consistency, and moral approval, are certainly not reducible to sensuous elements. Again: stage of development, though possibly a consideration of much use for educational purposes, is not an appropriate ground of division from the standpoint of psychological analysis. What is needed is a systematic grouping of the several distinct species of emotion, such as love, wonder, hope, anger, fear, and the like, according to their mutual affinities, and as far as possible in their purest forms. If we wish to study the characteristics of the various human races, we class them as Caucasian, Mongolian, American Indian, and the other large divisions, and then subdivide these groups into smaller families, the Indo-Germanic, the

Semitic, and the rest. We do not take as our classes: man up to the age of three; from three to ten; from ten to twenty. A consequent fatal defect of this development method of classification is that it distracts our attention from most of the very affinities and differences which it is our primary object to discover. The characteristic features of the elementary distinct types of emotion are ignored, and widely opposed qualities of consciousness are grouped together, whilst what is fundamentally the same activity in successive stages of growth is split up and assigned to different categories. Thus curiosity, indignation, and admiration for the beautiful should appear in nearly all the four compartments. The error of this classification is, in a word, the substitution of differences of *degree* for differences of *kind*.

We have here cited merely a few of the schemes presented by modern psychologists, and these mainly English. If we investigated the literature of Germany and France on the subject, we should find as we advanced confusion still worse confounded. The inference is obvious. Such manifold, profound, and hopeless differences of opinion, completely demonstrate what we were led *a priori* to conclude from the nature of the phenomena—that a methodical classification of a truly scientific character, or one which has any chance of meeting with general acceptance, is utterly impossible.

The Expression of the Emotions.—It is not easy to define the limits beyond which human investigation of the relations subsisting between soul and body cannot penetrate. Every line of research must come somewhere upon an ultimate fact for which no reason can be assigned. In the final analysis we always have to be satisfied with the statement that a definite neural movement is *de facto* the immediate antecedent or consequent of a given psychical act. The one cannot be deduced from the other; and why God created mind and body thus cannot be explained. But, though a vast region of mystery will ever surround the small field of human knowledge, it is the duty of the scientist to seek to push back the circumference of his circle as far as he can. At this object theories of emotional expression aim; and, although the subject lies on the border-lands of both Physiology and the Science of Mind, it seems here appropriate to give a short account of what has been done in this field.

Sir Charles Bell, the distinguished physiologist, in his essays on the *Anatomy and Philosophy of Expression* (1806—1844), was practically the first to attempt an accurate scientific treatment of emotional expression. He devoted himself solely, however, to describing in detail the muscular movements engaged in the manifestations of the various feelings, and he makes no pretence to explain *why* the particular gestures are connected with the corresponding mental state. He clearly showed the intimate relations subsisting between various passions and the action of the lungs and heart. Of facial movements he insisted upon variation of the angles of the mouth, and change in the position of the inner extremities of the eyebrows, as the chief instruments of expression.

Dr. Bain seeks to go a step further in the line of explanation in attempting to formulate a principle which will account for the difference in character of the movements accompanying different kinds of feeling. This he does in his "Law of Self-conservation:" *States of pleasure are concomitant with an increase, and states of pain with an abatement of some or all of the vital functions.* Pleasurable feelings—joy, laughter, hope—express themselves in augmented vigour of the vegetative functions, and also in the stimulation of various muscles, facial, respiratory, and the like. On the contrary, painful feelings—sadness, fear, disease, result in depression of organic life, and in the general diminution of motor activity. This generalization embraces a considerable number of facts, but it is subject to so many limitations that its claims to be styled a *law* are very doubtful. A large class of pleasant stimulants may be injurious to vital functions; several kinds of agreeable food are not wholesome, or at all events not so in proportion to their pleasantness. Many exciting pleasures do not do us good, and we are continually warned that the free gratification of our desires will seriously interfere with both our health and happiness. On the other hand, pain certainly excites to activity. The utility of the whip is established by a very long experience. It is urged indeed by Dr. Bain, that movement caused by pain leaves exhaustion afterwards. This is true, but the same may be said of many pleasures. On the whole, however, since pleasure accompanies energies in harmony with the well-being of the agent, whilst pain results from what is injurious, the law of self-conservation contains a certain element of truth. Still, this principle is so vague that it advances us very little in accounting for particular forms of emotional expression.

The complete solution of the problem has been undertaken by Darwin and Mr. Spencer. Their professed aim is to describe the genesis of emotional expression in the history of the race,—to show how, and why, according to the hypothesis of evolution, certain expressive movements came to be attached to special mental states. Darwin's theory is embodied in three laws:

1. *The principle of the preservation of serviceable associated habits.*—Movements which at an earlier period in the history of the race were instrumental in the relief or gratification of particular mental states, tend to survive when no longer of use. The phenomena of *frowning* and *weeping* are thus explained as being effects on the eyebrows and lachrymal glands of the contraction of certain ocular muscles. This contraction was the result of prolonged fits of screaming, very frequent during infancy in the early history of the race. At present though the scream be voluntarily suppressed, and the cause removed, painful mental states will still produce the frown or the tears. Scratching the head was serviceable for the relief of cutaneous irritation during long years of pre-human existence, and still persists as a gesture aroused by intellectual distress. Similarly, grinding the teeth and clenching the fists, formerly useful actions in conflict, now accompany angry feelings when apparently purposeless.

2. *The principle of antithesis.*—Opposite impulses of will tend to urge us in opposite directions. In the same way, given certain states of mind leading to habitual actions under the previous principle, opposite states of mind will tend to set up movements of a directly contrary nature, though they be of no particular use. The *flexuous* movements of a joyful affectionate dog are thus accounted for, as the antithesis of the *rigid* attitude of angry dislike.

3. *The principle of actions due to the constitution of the nervous system independently from the first of the will, and independently to a certain extent of habit.*—To this class are assigned all expressive movements not accounted for by the other two laws. Such are the trembling of the muscles, modifications of the secretions, and other changes effected by particular emotions.

On this theory we may make one or two brief remarks. As regards the first law, if the doctrine of descent were already established, the explanation thus given of a few instinctive gestures, such as clenching the fists and grinding the teeth, would certainly be plausible. But that doctrine, it is needless to observe, is itself only a hypothesis against which an immense weight of objection has been raised. Even, however, were that doctrine admitted, the application of the law in a large majority of the cases would still be, to say the least of it, very improbable. To take the example of weeping, cited by Darwin, there is no real evidence to show that screaming of itself is productive of tears, for the screams of both infants and adults are often strongest when tearless; and, on the other hand, tears may flow from joy or pity, although these states cannot have been associated with infantile screaming. Similarly the connexion between irritation of the scalp and intellectual anxiety is very faint.

A most important point, however, which is completely overlooked by advocates of Evolution, is the fact that emotional expression must have often been disadvantageous, not beneficial, to the individual. If Talleyrand's saying, "Speech is given man to conceal his thoughts," possesses an element of truth in any condition of human society, assuredly the manifestation of his feelings and desires must have been detrimental to the agent in the earlier stages of animal existence. The premonitory disclosure of hatred or fear, for instance, would have been invariably unprofitable. If, therefore, so serious a disqualification as either of these habits is compared with the infinitesimal advantages in the struggle for life, on which evolutionists are wont to build up such great results, the impartial mind must conclude that, according to the theory of Natural Selection, instinctive modes of expression ought, as a rule, to have been extinguished almost as soon as they appeared. Treachery is the most potent of all weapons; and the exposure of his sentiments and intentions, however beneficial to his fellows, must have been ruinous to the individual in the long run. Consequently, if the *only* agencies at work were the casualties of Natural Selection, a large number of the most striking forms of emotional expression would never have come into existence. They can, in fact, only be accounted for by the assumption that they were designed for the good, not of the individual, but of his neighbours.

Darwin's second principle has met with but little acceptance even amongst his disciples. When we endeavour to realize precisely what is meant by *contrary* feelings tending to produce movements of an *opposite* nature, we discover that the conception of contrariety involved is extremely vague. "What is meant, it may be asked, by opposition between the impulses of the will to turn to the right and to the left, over and above the contrariety of direction in the resulting movements? And even supposing there were such mysterious contrast in our volitions, with which contrariety of movement had become instinctively associated, one might still inquire how we should be able to determine the proper antithesis in the case of any given emotion. Why, for example, should the movements of a dog during an outburst of affection be regarded as the antithesis of movements which accompany anger, rather than of those which characterize terror? As states of feeling, one suspects, terror before a threatening look and the pleasurable elation at friendly symptoms, have quite as many elements of contrast as the feelings said to be in antithesis by Mr. Darwin; and so far from the movements of these opposite feelings being unlike, they very closely resemble one another in many respects, as may be seen in the fawning and crouching attitudes."[16]

Darwin's third principle is very comprehensive, but it suffers from the disadvantage of explaining virtually nothing. It merely tells us that the character of certain expressive movements resulting from the excessive generation of nerve force by strong feeling is determined by the constitution of the nervous system. This is undoubtedly the case, and Mr. Darwin's theory would, we believe, have approximated more to actual truth, though thereby losing the charm of ingenuity and originality, if it had assigned a considerably larger share of the phenomena to this cause.

Mr. Herbert Spencer accounts for emotional expression thus: Nervous energy is aroused by feeling, and tends to express itself in the discharge of motor activity. This discharge exhibits itself partly in a general effect diffused throughout the entire system, partly in special excitement within a restricted field. An attack of coughing exemplifies both. The disturbance produced will be directly as the intensity of the feeling, and inversely as the size of the muscles acted upon. Thus, a faintly pleasurable feeling may excite a slight lateral oscillation in a dog's tail, whilst stronger emotion sets him barking and capering around. Further, movement first takes hold of the smaller and more easily moved muscles, afterwards of the heavier parts, and finally of the whole body. This may be seen by tracing the external manifestations of a fit of anger or merriment. In the incipient stages slight feelings act upon the lips and eyebrows, but as the passion grows in strength the lungs, head, limbs, and finally the entire organism may be set in violent motion. The particular movements within the restricted field, however, are those which specifically express the several qualities of emotion. These movements are, in Mr. Spencer's view, inherited ancestral actions by which feelings similar in kind to those now aroused were formerly satisfied.[17]

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[16] Sully, *Sensation and Intuition*, p. 29.

Mr. Spencer's *law of restricted discharges* is substantially identical with Darwin's principle of serviceable associated actions, and the remarks we have made above are again applicable here. Mr. Spencer also illustrates his law by an account of the genesis of that most important emotional expression—the frown. The wide divergence between his explanation and that of Darwin, affords an instructive comment on the worth of the doctrine common to both. The corrugation of the eyebrows, Mr. Spencer tells us, is useful in protecting the eyes from the rays of the vertical sun. This act would therefore have afforded an advantage in tropical regions during the combats of the animals from whom we are more immediately descended. Accordingly, those individuals in whom the nervous discharge accompanying the excitement of combat chanced to cause an unusual contraction of the corrugating muscles of the forehead "would be more likely to conquer and leave posterity—survival of the fittest tending in their posterity to establish and increase this peculiarity."[18] The recurrence of angry feelings or non-pleasurable states of any kind would, therefore, by association tend after a time to excite the frown, where its utility as a sunshade had ceased. Mr. Darwin, as we have already mentioned, showed in an equally conclusive manner that frowning is an inheritance from the distortion of the facial muscles during long ages of infantile screaming. Both hypotheses exhibit the fertile imagination possessed alike by the philosopher and the naturalist, but the conflict in their conclusions ought to warn us of the exceedingly precarious character of their theory.[19]

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[17] His theory may be summarized in his own words: "Every feeling has for its primary concomitant a diffused nervous discharge which excites the muscles at large, including those that move the vocal organs, in a degree proportionate to the strength of the feeling, and, therefore, muscular activity increasing in amount becomes the natural language of feeling, increasing in amount—be the nature of the feeling what it may A secondary concomitant of feeling in general, as it rises in intensity, is an excitement by the diffused discharge, first of all in the small muscles attached to easily moved parts, afterwards of more numerous and larger muscles moving heavier parts, and eventually of the whole body. . . . Passing from the diffused to the restricted discharges, we have noted how there has been established in the course of Evolution, a connexion between the nervous plexuses in which any feeling is localized and the sets of muscles habitually brought into play for the satisfaction of the feeling. Whence it happens that the rise of this feeling shows itself by a partial contraction of these muscles, causing those external appearances called the natural language of the feeling." (Cf. *Principles of Psychology*, § 502.) Darwin's theory is expounded in his book, *The Expression of the Emotions in Man and Animals*, 1872. Mr. Spencer's treatment of the subject is given in his Essays on the *Physiology of Laughter*, and in his *Principles of Psychology*, Pt. VIII. c. iv.

Mr. Spencer's *law of general diffusion* corresponds to Darwin's third principle, but is a far more definite and satisfactory description of the course of neural disturbance. It appears to us to contain much truth. It gives a natural account of the gradual development of the external manifestation of feeling, and embraces many curious facts. Unfortunately, however, Mr. Spencer at times does not seem to distinguish clearly between the mental state and its physical concomitant. He frequently appears, especially in his article on *Laughter*, to speak as if the emotion were itself identical with, or transformable into, the accompanying discharge of nervous energy; although he elsewhere recognizes the transcendent difference which separates them. Moreover, rejecting Dr. Bain's law of self-conservation, and teaching that motor activity is in proportion to intensity of feeling, whether pleasant or painful, he substitutes no other definite principle to account for the peculiarities of expression which mark off widely different classes of feeling.

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[18] *Principles of Psychology*, § 498. For Darwin's account of the gesture, cf. op. cit. pp. 225, 226.

[19] The distension of the nostrils by indignation, Mr. Spencer similarly traces to the accidental advantage gained by those of our ancestors in whom the diffused discharge chanced to dilate the nostrils during conflict, especially when influenced by non-pleasurable feelings their mouths were filled by part of an antagonist's body. The force of this ingenious explanation is somewhat seriously shaken by the fact, that the nostrils are also dilated in certain *pleasant* states; and we find Wundt classing this gesture under the general tendency to extend the mouth, eyes, nostrils, &c., in order to increase *agreeable* sensations. The act of blushing and, several other phenomena are also differently accounted for by these three writers. The simple truth is that once we get into the regions of pure imagination, there is absolutely no limit to fanciful hypotheses.

Professor Wundt's theory is formulated in three general laws: 1. *The principle of the direct alteration of innervation.* This signifies that intense emotions generate their external expression by exerting an immediate reaction on centres of motor innervation, paralyzing or stimulating the action of many groups of muscles. To this cause are due the trembling of limbs and voice, palpitation of heart, contraction and enlargement of blood-vessels and capillaries instrumental in secretion, and consequent reddening under shame or anger, and pallor in fear. Change of colour is confined to the face, because the chief current of blood from the heart is to the head. 2. *The principle of the association of analogous sensations.* This means that different species of sensations in which there is a certain community of *tone* or *quality* tend more easily to combine and strengthen each other. The muscles of the jaws thus assume an attitude of tension under energetic feelings, of agreeable ease in quiet satisfaction, and of unpleasant distortion under contrary emotions. The movements of the mouth and tongue under the action of sweet, bitter, sour, or disgusting tastes, are also excited by the *idea* of such sensations, and then transferred to analogous *feelings* or *emotions.* The physical movement by which we seek to increase the pleasant sensation, or to diminish the painful one, is attached to the emotion whose quality bears some remote resemblance to the sensuous impression. 3. *The principle of the relation of movement to the perceptions of sense.* This law embraces all gestures and expressive motions not included under the other two. Movements of the eyes, head, and limbs accompany our thoughts and words. As our language or feelings become excited we point towards distant objects, clench our fists, raise our arms, erect our head, and the like. We smilingly nod assent, or deprecatingly draw back our head from the imagined object. We tend to close our eyes before unpleasant impressions, to open them wider in the presence of what is agreeable. This movement of the eyebrows determines the wrinkles of the forehead, which assume a horizontal position in joy, but vertical lines in sadness. By the second principle these actions are transferred to mental states of care, expectation, and reflexion. The positions assumed by the mouth, lips, nostrils, and eyes, when weeping or laughing, all illustrate the same principle.

This theory is less imaginative than either of those just mentioned, but it aims at determining more accurately the relations between many classes of feelings and their expression. From a psychological stand-point it is superior to Mr. Spencer's doctrine, and it seems to give a plausible account of many phenomena. Nevertheless, the very limited value of such theories should be clearly realized. Besides the fact that the final mystery—why any mental state results in any physical movement—will ever remain insoluble, it must be also admitted that all these hypotheses alike, even after very benevolent interpretation, leave a large number of the most expressive symptoms of emotion incapable of any other explanation than that such actions are products of man's nature, which exquisitely manifest his internal feelings.

THE ORIGIN OF LANGUAGE.—Rational language may be described as, *a system of conventional signs representative of thought:* or we may define *oral language* in more precise fashion as, *a system of articulated words representative of thought.* The primary object of language is the communication of ideas; but it serves in addition as a record or register of past intellectual acquisitions, and also as a mechanical aid to thinking. The essence of language is the expression of thought,—notions, judgments, reasonings; hence flow all its other properties. The origin of language thus understood, has formed a prolific subject of speculation. It is the function of Theology, not Philosophy, to interpret the passages of Scripture bearing on this matter, and to explain in what manner and to what extent this gift was communicated to the first human beings. Apart, however, from the decision of these points there remains for Philosophy the question: Could language have been invented by man, and, if so, by what agencies and laws would its development be governed? The latter investigation, moreover, is not purely hypothetical in character. Whatever be the exact interpretation of Scripture adopted regarding man's initial endowment in this respect, the subsequent history of language will, in accordance with God's usual providence, have been governed by natural laws. Abstracting then from Revelation, could language have arisen in a natural manner? and, however originated, what are the principles which have determined its evolution?

To constitute *rational speech* the name must be employed consciously *as a sign* of an object of thought. The parrot articulates words, and the dog unmistakably manifests feelings of joy or anger; but neither of these animals is capable of language in the proper sense of the term. Even the most pronounced advocates of Materialism are constrained to admit that no other creature but man has ever attached a name to an object.[20] For such an operation, a supra-sensuous power of abstraction and reflexion is absolutely necessary. Accordingly, language could not have preceded the existence of intellect or reason. Manifesting thought, it must be subsequent to thought. It presupposes the formation of general concepts, and in its simplest employment of a word as a sign, language involves that apprehension of universal relations which is the characteristic feature of supra-sensuous intelligence. Still, the invention of language does not require a previous fund of elaborate notions. Looking on human nature as we find it at present, the accumulation of a considerable collection of intellectual products, and any but the most meagre cultivation of the rational faculties seems naturally impossible without the assistance of words. But given men created with both the reflexive activity of thought and the physical power of making signs, and they will inevitably soon learn to communicate their ideas to each other.

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[20] Cf. Maudsley, op. cit. p. 502. On the other hand, no tribe of men has yet been discovered void of the attribute of speech.

Starting with the social instinct, we find that men tend to congregate together. In the next place, their nature is such that lively emotions are expressed not merely in facial changes, but in cries and movements. There is also exhibited in man, especially in early life, a curious mimetic impulse, which leads him to reproduce in his actions and utterance the phenomena of external nature, whether animate or inanimate, that most interest him. Cries thus elicited in sympathy or fright, having been both felt and heard by the individual in the presence of the external object, will be associated with it, and tend to be reproduced on other occasions, according to the laws of suggestion. Moreover, living in community and being of like nature and disposition, men would be impelled to similar manifestations, and would soon grow to associate their neighbour's utterances as well as their own with the appropriate external event. We have not, however, yet reached *rational* language; we are still in the plane of sense and instinct. These are preliminary steps; still, gregarious brutes would get thus far. But in addition to these aptitudes, man is endowed with the faculty of abstraction and reflexion, and this power would now inevitably lead him to conceive and employ these expressions *as signs* of the corresponding objects; and at once we have rational speech.

To the first query, then, we must answer in the affirmative. Apart from any special Divine intervention, man, with his present nature, by use of the faculties which God has given him, would have invented a language. The materials employed for signs will be in part the exclamations emitted as interjections, in part mimetic utterances by which he seeks to suggest to the hearer the object imitated.[21] The indirect action of the onomatopœic tendency is, however, probably far more influential than its immediate results. Not only are analogies observed between the sensuous impressions and the sounds or feelings of effort put forth in the responsive vocal expression, but kindred utterances involving a like tone of consciousness are used to designate analogous, though very unlike experiences. Still, by far the most important part of all languages, it has been forcibly argued, is reducible by the science of Comparative Philology to a small collection of generic roots representative of universal ideas though applied to particular objects. These root-sounds, it is asserted, cannot be onomatopœic; they are indicative of characteristic actions or attributes of the object, and so are expressive not of particular impressions, but of general notions. For this reason they are fruitful and capable of forming part of the names of many things possessing this feature in common. These four hundred or five hundred ultimate roots, which remain as the generic constituent elements in the different families of languages, are neither interjectional nor mimetic sounds, but *phonetic types* produced by a power 'inherent in human nature. There is, in fact, a species of natural harmony between the rudimentary oral expression and the corresponding thought, just as there is between the latter and the external reality.[22]

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[21] The hypotheses which lay chief stress on the interjectional and onomatopoeic impulses have been respectively styled by Max Muller the "*Pooh-pooh* and *Bow-wow* theories." (*Lectures on the*

Science of Language, First Series, p. 344) He holds that the efficiency of these principles is extremely limited, many apparent instances of onomatopœia not being really so, *e.g. thunder* from the same root as the Latin *tenuis*, *tender* and *thin* Squirrel not from the rustling whirling of the little animal, but from the Greek *Skiouros* = *shade*, *tail*; the French *sucre* from the Indian *sarkhara*, &c He does not however seem to have considered sufficiently the mediate or indirect agency of onomatopœia.

[22] Cf. Max Müller, op. cit. Lect. ix. Apart from the question of the original fund of root-sounds—which is equally a difficulty to all purely rational theories—Müller's general doctrine seems plausible. The fierce conflict, however, which still prevails on most fundamental questions of the science of Comparative Philology makes one feel that beyond the limited region of common agreement even the most attractive hypotheses are extremely hazardous. Schleicher,

Very little original capital would have been required, and however this was obtained, whether in the form of casual sounds accompanying appropriate gestures, or as a spontaneous product of human nature, or as a collection of suitable utterances elicited by Divine action, the start once effected progress was comparatively easy. New surroundings, new wants, the inventive energy of intellect, the force of analogy, multiplied and perfected the materials in use. Diversities of climate, food, and exercise, acting on the organism, modify the vocal machinery. Special occupations develope particular groups of words earlier in one district than in another. Variety of classes, trades, and professions within the same nation fosters the simultaneous growth of a multiplicity of terms. The onomatopœic and interjectional tendencies continue to make small contributions from time to time, but the great force which enriches our vocabulary is analogy. The old roots representing generic attributes merely require recombination to express a novel object. Growth of language and intellectual power will be naturally concomitant, for they act and react upon each other. There is, consequently, a wide difference between the mental development of a child born to the inheritance of a wealthy language which embodies treasures slowly heaped up by ages of past genius, and the members of a simple community provided with a meagre outfit of names, just sufficient to satisfy the necessities of life.

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for instance, the leading Darwinian in this field, whose confidence in his views is always in direct proportion to the obscurity of the subject-matter, asserts that language is a natural *organism*, the growth and decay of which is governed by fixed and immutable laws. Language is as independent of the will of the individual as the song of the nightingale. Opposed equally to both Max Müller and Schleicher is the chief American philologist, Professor Whitney. With him language, which separates man from the brute, is essentially a voluntary invention, an "institution" like government, and "is in all its parts arbitrary and conventional." (*Life and Growth of Language*, p. 282) Steinthal's teaching increases the novelty, and Heyse, who stands to Hegel as Schleicher to Darwin, evolved a mystical creed on the subject, in unison with the spirit of his master's philosophy. An account of the various theories is given in Sayce's *Introduction to the Science of Language*, Vol. I. c i, *Readings.*—The ablest scholastic treatise on Emotional Activity which we have seen is *Das Gemüth und das Gefühlsvermögen der neuren Psychologie*, von J. Jungmann, S.J. Dr. Gutberlet handles the matter from a different point of view, op cit. pp. 199—229. On Language and Emotional Expression, *id.* 116—128. A synopsis of Wundt's theory of Expression is given by Ladd, op. cit. p. 531. The subjects of the present chapter are discussed in P. Chabin's *Cours*, sect. i. cc. vii. ix., also in sect. ii. Portions of Dr. M'Cosh's *Emotions* are valuable.

PSYCHOLOGY.

BOOK II.

RATIONAL PSYCHOLOGY.

INTRODUCTORY.

WE have hitherto been engaged in studying the nature of our several mental activities, and the modes of their exercise; we now pass on to inquire into the constitution of the principle from which they proceed. The aim of *Rational Psychology* is to penetrate to the source of the phenomena of consciousness. It endeavours to ascertain the inner nature of the subject of our psychical states, and to discover the relations subsisting between this subject and the body. In a word, Rational Psychology seeks to learn what may be gathered by the light of pure reason regarding the character, the origin, and the destiny of the human soul.

The importance of such a study is obvious. What are we? Whence come we? What have we to do? What is there to hope for? These have ever been questions of transcendent interest, and never more so than at the present day.

Beside them, the most brilliant discoveries in the region of empirical facts, whether physical or psychical, sink into almost contemptible insignificance. Mental association, the perception of space, the analysis of the emotions, are undoubtedly matters worthy of the psychologist's attention, but when we compare them with such problems as the spirituality or immortality of the human mind, their relative triviality is vividly forced upon us. Nevertheless, nearly all the best known English works upon Psychology entirely omit this branch of the subject. The philosopher's most industrious observation and careful reflexion are devoted to ascertain the respective sensibility of various parts of the skin, to find out the range of vision in babies and chickens, and to catalogue the different elements which go to constitute a fit of anger or a feeling of pity. Whole volumes are allotted by him to the treatment of these and kindred subjects, whilst not a page of his work, described on the outside as *Psychology*, is assigned to the discussion of the nature, origin, or destiny of the human soul.

It is true, indeed, that many of those writers who adopt this course believe the mind to be merely a function of the brain. Still, in works professing to be scientific text-books on *Psychology*, the authors are bound to substantiate such a view. The writer who frankly tells his reader that Materialism is the logical outcome of the theory of mental life which he presents, and who openly advances his arguments in support of that doctrine, shows that he at least apprehends, however wretchedly he fulfils the duty of the psychologist. But the book which, claiming to be a treatise on Psychology, shirks altogether the question, whether there really be any mind distinct from the organism, indicates either a strange ignorance of the subject with which it professes to deal, or a want of candour and honesty in concealing the consequences of a theory which might shock some of its readers.

As regards those authors who explicitly endeavour to divorce Empirical Psychology from the philosophical or rational inquiry into the nature of the mind, the futility of their attempt is made evident by reflexion on the manner in which the solution of the most wide-reaching metaphysical problems is affected by the view taken as to the character of our mental operations. The first part of this work, whatever be its positive value, ought to have at least proved that it is impossible to isolate the doctrine of the phenomena of consciousness from Philosophy. Our convictions regarding the existence of an external world, the nature of the higher faculties of the soul, human responsibility, and the final question of materialism or spiritualism, must inevitably be determined by the account of the character of mental life accepted in the empirical portion of Psychology. Accordingly, the reader who has followed us so far will at all events have seen that any so-called scientific treatment of the mind which professes to keep clear of all metaphysical questions, and to leave the great problems of life untouched, must be delusive.

Our method of procedure here will be partly inductive, partly deductive. We start from the truths already established to reach others not yet known. We argue from the effect to the cause; from the character of those mental activities which we formerly investigated with so much care, we shall now be able to infer the nature of the subject in which they inhere. From what the mind *does* we will learn what it *is*. From the spiritual character of our intellectual and voluntary operations, we will show that the soul is endowed with the attributes of simplicity and spirituality; or rather, that by virtue of its nature it *is* a simple spiritual being. When this all-important truth has been firmly established, we shall deduce certain other propositions regarding the soul's origin and destiny.

CHAPTER XX.

SUBSTANTIALITY AND SIMPLICITY OF THE HUMAN SOUL.

By the word *Soul,* we understand *the subject of our mental life, the ultimate principle by which we feel, think, and will.* We now proceed to expound and justify our doctrine regarding the nature of the reality corresponding to this term *soul:*

THE HUMAN MIND OR SOUL IS A SUBSTANTIAL PRINCIPLE.—This proposition merely asserts that the ultimate basis of our conscious life cannot be a *mode* or *accident.* A *principle* is that from which something proceeds. *Substance* we have already defined as, "*being which exists per se,*" which subsists in itself, in opposition to *accident,* which is being that cannot so subsist, but must inhere in another being as in a subject of inhesion. Now the last ground of our mental life, the ultimate basis of our psychical existence, must be a substantial principle. States of consciousness, mental modifications, necessarily presuppose a subject to which they belong. Even assuming that they may possibly turn out to be merely functions of the nervous system, phases or aspects of cerebral processes, they would still have their root in a substantial principle. Motion is impossible without something moved. A feeling necessarily implies a *being* which feels. Cognitions and emotions cannot inhere in nothing. Volitions cannot proceed from nothing, they must have a source from which they flow. So far, even the materialist must agree with us. He admits the existence of sensations, and he cannot deny the general principle that a state or modification necessarily implies a subject. This ultimate substantial principle, which is the subject of our conscious states, we call the *Soul*.

THE HUMAN SOUL IS A SIMPLE OR INDIVISIBLE SUBSTANTIAL PRINCIPLE.—By affirming the simplicity of the soul we deny that it is either extended or composed of separate principles of any kind.[1] Our argument runs thus: Every extended or composite substance consists of an aggregate of distinct atoms or parts; but the subject of our conscious acts cannot consist of such an aggregate; therefore, it is not an extended or composite substance. The major premiss is evident. The minor is proved by a multitude of mental facts of which we will indicate a few.

(1) *The Simplicity of Intellectual Ideas.*—Every one's experience teaches him that he is capable

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[1] The schoolmen expressed the former attribute—absence of extension or composition of integrant parts—by the term *quantitative simplicity* The fact that the soul is not the result of a plurality of principles coalescing to form a single nature (as *e.g.*, in their view the formal and material principles of all corporeal objects) they signified by asserting that it is *essentially* simple—*simplex quoad essentiam* Our proof equally excludes all forms of composition, that of extended parts as well as that of separate unextended principles, whether homogeneous or heterogeneous. The *unity of consciousness* is incompatible with a multiplicity of component elements, of whatever kind.

of forming various abstract ideas, such as those of Being, Unity, Truth, Virtue, and the like, which are of their nature simple indivisible acts. Now, acts of this sort cannot flow from an extended or composite substance such as, for instance, the brain. This will be seen by a little reflexion. In order that the indivisible idea of, say, Truth, be the result of the activity of this extended substance, either different parts of the idea must belong to different parts of the brain, or each part of the brain must be subject of an entire idea, or the whole idea must pertain to a single part of the brain. Now the first alternative is absurd. The act by which the intellect apprehends *truth*, *being*, and the like, is an indivisible thought. It is directly incompatible with its nature to be allotted or distributed over an aggregate of separate atoms. But the second alternative is equally impossible. If different parts of the composite substance were each the basis of a complete idea, we should have at the same time not one, but several ideas of the object. Our consciousness, however, tells us this is not the case. Lastly, if the whole idea were located in one part or element of the composite substance, either this part is itself composite or simple. If the latter, then our thesis—that the ultimate subject of thought is indivisible—is established at once. If the former, then the old series of impossible alternatives will recur again until we are finally forced to the same conclusion.

(2) *The Simplicity of the Intellectual Acts of Judgment and Inference.*—A similar line of reasoning

applies here. The simplest judgment supposes the comparison of two distinct ideas, which must be simultaneously apprehended by one indivisible agent. Suppose the judgment, "Science is useful," to be elicited. If the subject which apprehends the two concepts "science" and "useful" is not indivisible, then we must assume that one of these terms is apprehended by one part and the other by a second; or else that separate elements of the divisible subject are each the seat of both ideas. In the former case, however, we cannot have any judgment at all. The part *a* apprehends "science," the different part *b* conceives the notion "useful," but the indivisible act of comparison requiring a single agent who combines the two ideas is wanting, and we can no more have the affirmative predication than if one man thinks "science," and another forms the concept "useful." In the second alternative, if *a* and *b* each simultaneously apprehended both "science" and "useful," then we should have not one but a multiplicity of judgments. The simplicity of the inferential act of the mind by which we seize the logical sequence of a conclusion, is still more irreconcilable with the hypothesis of a composite subject. The three judgments—Every *y* is *z*; every *x* is *y*; *therefore*, every *x* is *z*—could no more constitute a syllogism if they proceeded from a composite substance than if each proposition was apprehended alone by a separate man.[2]

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[2] Cf. Balmez, op. cit. Bk. XI. c. ii.; and Lotze, *Metaph.* § 241; also our citation from the latter philosopher on pp. 252—254 These

(3) *Memory.*—Through memory we are aware of our own abiding personal identity. We know with the most absolute certainty that we are the same persons who yesterday, last week, fifty years ago, had some very vivid experience. But this would be impossible were the mind constituted of successive states, or were the material substance the substantial principle in which these states inhere. The constituent elements of the latter, it is a generally admitted physiological fact, are completely changed in a comparatively short time; and fleeting mental acts which did not inhere in a permanent subject, could result no more in memory than could the disconnected cognitions of successive generations of men. It is only an indivisible principle, persisting

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proofs, especially 1, 2, and 3, are various illustrations of the argument against Materialism based on what is called by modern writers the *unity of consciousness*. This term signifies the truth that our manifold conscious states are either explicitly referred to a single indivisible unity, or are apprehended in reflexion to be possible only as acts of such a simple subject. "We come to understand the connexion of our inner life only by referring all its events to the one *Ego* lying unchanged alike beneath its simultaneous variety and its temporal succession. Every retrospect of the past brings with it this image of the *Ego* as the combining centre; our ideas, our feelings, our efforts are comprehensible to us only as *its* states or energies, not as events floating unattached in a void And yet we are not incessantly making this reference of the internal manifold to the unity of the *Ego*. It becomes distinct only in the backward look which we cast over our life with a certain concentration of collective attention . . It is not necessary and imperative that at every moment and in respect to all its states a Being should exercise the unifying efficiency put within its power by the unity of its nature. . . . If the soul, even if but rarely, but to a limited extent, nay, *but once* be capable of bringing together variety into the unity of consciousness, this slender fact is sufficient to render imperative an inference to the indivisibility of the Being by which it can be performed." (*Microcosmus*, Bk. II. c i. § 4.) The student must be careful not to conceive the *unity of consciousness* in this sense as opposed to the doctrine of the ultimate *duality of consciousness* in External Perception, cf. pp. 94—98 unchanged amid transitory states, that is able to afford an adequate basis for the faculty of remembrance: "The condition necessary for the act of recollection is, then, the identity of the being who remembers with that being whose former states are recalled by memory. To remember the experiences of another would be to remember *having been somebody else*: in other words, to simultaneously affirm and deny one's own identity, a pure and absurd contradiction."[3]

(4) *The Indivisibility of Volition.*—The same line of argument as in the case of judgment establishes the simplicity of the soul from the unity of consciousness presented in acts of will. An indivisible act of choice cannot be elicited by an assemblage of distinct parts or principles.[4] However, we leave the development of the proof to the reader.

We have now demonstrated the simplicity of the substantial principle lying at the root of mental phenomena, and we have shown that it cannot be an extended or a composite reality. The arguments, indeed, which we have just given, prove not merely the *simplicity* but also the *spirituality* of the soul, though this latter truth will be explicitly treated in the next chapter. We have, accordingly, disproved the cardinal dogma of Materialism—that thought and volition are functions of the brain. However, very brief examination of any of our conscious states would have been sufficient to show the absurdity of thus describing them. The essential properties of all functions of corporeal agents are reducible to two —motion, and the generation of a material product. In other words, a function of a material agent is always something of a kind to be apprehended by the external senses, something which continues to exist when unperceived, something possessed of extension, occupying space, and exhibiting the action of force on other bodies. Now, the *absence* of all these properties is precisely what characterizes, not merely the higher activities of *intellect*, but the most elementary sentient states. It is true that Dr. Bain, Mr. Herbert Spencer, and most modern materialists who shrink from the vulgar frankness of Cabanis, Vogt, and Broussais, refuse to speak of thought as a "secretion of the brain." But the facts to which we have above appealed are absolutely decisive against Materialism, in however refined a shape it appear. Still, we will seek to make its overthrow more complete in the next two chapters. We would also remind the reader here that the thesis of this chapter, though disproving the possibility of *formal* extension in the soul, does not exclude what is sometimes spoken of as *virtual* extension—that property in virtue of which an energy indivisible in itself may yet exert its influence or force throughout an extended sphere.

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[3] Margerie, *Philosophie Contemporaine*, p. 140. This and the preceding argument bring out the *permanence*, as well as the *simplicity*, of the substantial soul.

[4] Exhaustive illustrations of this argument are given by Margerie, pp. 151—156, and Balmez, op. cit. Bk. IX. § 76.

CHAPTER XXI.

THE SPIRITUALITY OF THE SOUL.

IN our last chapter we have proved that the human soul must be a substantial principle, and, moreover, that this principle must be of an indivisible and abiding nature. We now pass on to demonstrate that the soul is *spiritual* or *immaterial*. The attribute of spirituality is sometimes confounded with that of simplicity, but it is important to carefully distinguish these two terms. By saying that a substance is *simple* we mean that it is not a resultant or product of separate factors or parts. By affirming that it is *spiritual* or *immaterial*, we signify that in its existence, and to some extent in regard to its operations, it is independent of matter. The principle of life in the lower animals was held by the schoolmen to be in this sense an example of a simple principle which is nevertheless not spiritual, since it is absolutely dependent upon the organism, or, as they said, *completely immersed* in the body. St. Thomas, accordingly, speaks of the *corporeal* souls of brutes.

THE HUMAN SOUL IS A SPIRITUAL SUBSTANCE.—The human soul is the subject of various spiritual activities; but the subject of spiritual activities must be itself a spiritual being; therefore the soul must be a spiritual being. The minor premiss is merely a particular application of the axiom, that the operation of an agent follows its nature—*actio sequitur esse.* As the being is, so must it act. The establishment of the general truth of this principle is a problem for Metaphysics, but all that is necessary for our purpose becomes evident on a little careful consideration of the axiom. An effect cannot transcend its cause: no action can contain more perfection or a higher order of reality than is possessed by the being which is the entire source of that action. If, then, a mental activity can be shown not to be exerted by a material organ, or to be in any degree independent of a material organ, the principle from which that activity proceeds must be similarly independent. It is positively unthinkable that whilst the soul depended as regards its whole being on the organism, it should still in some of its exercises be in any way independent of the organism. If, accordingly, any activities, modifications, or faculties of the soul are spiritual, then the soul itself is spiritual. For the proof of our major premiss—that we are endowed with activities of a spiritual or immaterial kind—we have only to refer to the results established in chapters xiii. and xviii. where we showed both Intellect and Will to be intrinsically independent of the body. We will, however, here recall some of the facts which bring out in the clearest manner the truth of our thesis:

1. *The Spirituality of the Faculty of Thought.*—We are capable of apprehending and representing to

ourselves abstract and universal ideas, such as truth, unity, man, triangle; we can form notions of spiritual being, *e.g.*, of God; we can understand necessary truths; we can comprehend possibilities as such; and we can perceive the rational relations between ideas, and the logical sequence of conclusion from premisses. But we have shown that such operations as these are spiritual phenomena, which must accordingly proceed from a spiritual faculty. They could not be states of a faculty exerted through, or intrinsically dependent on, a bodily organ. A power of this kind can only react in response to physical impressions, and can only form representations of a concrete character, depicting contingent individual facts. But universality, possibility, logical sequence, general relations, do not constitute such a physical stimulus, and consequently could not be apprehended by an organic faculty. Accordingly, these higher mental functions must be admitted to be of a spiritual character; they thus transcend the sphere of all actions depending essentially or intrinsically by their nature on a material instrument. If, however, any intellectual activity is of a spiritual character, the soul itself must be a spiritual being.

2. *Self-Consciousness.*—The reflex operation exhibited in the act of self-consciousness, is also of a spiritual or supra-organic order, and cannot be the activity of a faculty essentially dependent on a corporeal member. The peculiar nature of this aptitude, so fundamentally opposed in kind to all

the properties of matter, has been already gone into at such length,[1] that we can afford but little space for the subject here. We will, however, call attention to that aspect of this familiar phenomenon which has been often recognized by profound and thoughtful minds to be the most wonderful fact in the universe. In the act of self-consciousness there occurs an instance of the complete or perfect reflexion of an indivisible agent back on itself. I recognize an absolute identity between myself thinking about something, and myself reflecting on that thinking Self. The *Ego* reflecting and the *Ego* reflected upon is the same; it is at once *subject* and *object*. Now an action of this sort is not merely unlike the known qualities of bodies: it stands in direct and open conflict with all the most fundamental characteristics of matter. It is in absolute contradiction with the essential nature of matter. One part of a material substance may be made to act upon another, one atom may attract, repel, or in various ways influence another, but the assumption that one atom can act *upon itself*—that precisely the same portion of matter can be agent and patient in its own case—is repugnant to all that either common experience or physical science teaches us. If then this unity of agent and patient, of subject and object, is so contrary to the nature of matter, assuredly an activity every element of which is intrinsically dependent on a corporeal organ cannot be capable of self-reflexion. To such an activity self-knowledge, and the unity of consciousness, would be impossible. Consequently, there is a spiritual power within us, and the root from which it proceeds must be intrinsically independent of the body.

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[1] Pp. 243—247, 337—348.

3. *The Will.*—The interest attached to the discussion of the freedom of the will is chiefly due to the bearing of that doctrine on the nature of the human mind. If any of man's volitions are free, if they are not the outcome of the forces playing upon him, then there must be within him an inner centre of causality, an internal agent, a nucleus of energy, enjoying at least a limited independence of the organism. The argument based on voluntary action may, however, start from two distinct points of view:

(*a*) A merely sentient agent—one whose whole being is immersed in material conditions—can only desire sensible goods. It can only seek what is proportioned to its nature, and this is always reducible to organic pleasure or avoidance of pain. On the other hand, to a spiritual creature which is endowed also with inferior faculties, both sensuous and supra-sensuous good is adapted. Therefore, the aspirations of the latter are unlimited, while those of the former are confined within the sphere of material well-being. But our own consciousness, history, biography, and the existence of poetry and romance, all overwhelm us with evidence of the fact that man is moved by suprasensible good. Love of justice, truth, virtue, and right for its own sake, are motives and impulses which have inspired some of the greatest and noblest works chronicled in the narrative of the human race. Consequently, there must be in man a principle not completely subject to material conditions.

(*b*) Again: we are *free;* we are capable of self-determination; but no organic faculty can determine itself. Such an action, as we have already insisted, is repugnant to the essential nature of matter. On the other hand, were our volitions not spiritual, were they, as our opponents allege, merely subjective phases or mental states inseparably bound up with organic processes, did they not proceed from a principle independent of matter, then moral freedom would be absolutely impossible. Man would be devoid of responsibility and incapable of morality. But we have shown that this is not the case, consequently there is in man a factor not essentially dependent on his corporeal frame; in other words, there is in man a spiritual principle.

OBJECTIONS URGED AGAINST THE SIMPLICITY AND SPIRITUALITY OF THE SOUL.—We will here sketch the chief difficulties which have been urged against the simplicity and spirituality of the soul. As the two classes of objections merge into each other we will not attempt to separate them:

(1) In expositions of the coarser, though not least consistent forms of Materialism, such assertions as the following have been boldly put forward: "La pensée est une secretion du cerveau." (Cabanis.) "There subsists the same relation between thought and the brain, as between bile and the liver." (Vogt.) Moleschott describes thought as "a motion in matter," and also as a "phosphorescence" of the brain.[2] Other philosophers

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[2] For an account of modern German Materialism, cf. Janet, *Materialism of the Present Day*, c. i.; also Margerie, *Philosophie Contemporaine*, pp. 191 -226.

of like metaphysical acumen have been found to proclaim the existence of the soul to be disproved. because anatomy has not revealed it, the "dissecting knife" having never yet laid it bare.

Writers of this stamp scarcely deserve serious refutation. To speak of thought as a "secretion" or "movement" of cerebral matter is to talk deliberate nonsense. Thought is essentially unextended. The idea of virtue, the judgment that two and two must equal four, the series of connected reasonings by which the Forty-Seventh Proposition of Euclid is established, the consenting act of the will, the emotion of admiration, are by their nature devoid of all spatial relations. The various secretive organs effect movements and material products. Their operations occupy space, and the resulting substance is possessed of resistance, weight, and other material properties. The process and the product can be apprehended by the external senses, and they continue to exist when unperceived. Conscious states are the exact reverse in all these points. The microscope has never detected them. They cannot be weighed, measured, or bottled. When not perceived they are non-existent; their only *esse* is *percipi*. Even Mr. Herbert Spencer is forced to admit the futility of attempting to reduce mental states to physical processes: "No effort enables us to assimilate them. That a feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring them into juxtaposition."[8]

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[8] *Principles of Psychology*, Vol. I. § 62. Dr. Tyndall admits the same truth in a frequently cited paragraph: "The passage from the physics of the brain to the corresponding facts of consciousness is *unthinkable*. Granted that a definite thought and a definite molecular action in the brain occur simultaneously, we do not possess the intellectual organ, nor apparently any rudiments of the organ, which would enable us to pass by a process of reasoning from one to the other They appear together, but we do not know why. Were our minds and senses so expanded as to enable us to see and feel the very molecules of the brain, were we capable of following all their motions, all their groupings and electric discharges, if such there be, and were we intimately acquainted with the corresponding states of thought and feeling, we should be as far as ever from the solution of the problem

(2) In a slightly less crude way consciousness is described as a *function* of the brain: "On sait que le sentir ne peut être considéré que comme une fonction du cerveau."[4] "There is every reason to believe that consciousness is a *function of nervous matter*, when that matter has attained a certain degree of organization, just as we know the other actions to which the nervous system ministers, such as reflex action, and the like, to be."[5] "Thought is as much a function of matter as motion is."[6] The use of the term "function," however, does not better the materialist's position with any reader not contented with payment in obscure words. What is a "function of matter"? The only "functions" of matter of which physical science is cognizant consist of *movements* or *changes in matter*. Now, thought, as we have just pointed out, is nothing of this sort. If we employ this word at all, we must speak of intellectual activity as a function of something utterly opposed in nature to all known subjects of material force. When mental processes are at work, movements indeed take place in the nervous substance of the cerebrum, and it is accordingly true that the brain "functions" and expends energy whilst we think. But neither this functioning nor the energy expended constitutes *thought*. As Dr. Tyndall says, the "chasm" between the two classes of facts still remains "intellectually impassable."

(3) Dr. Büchner, by comparing the organism to the steam-engine, seeks to prove that mental life is merely the result of the complexity and variety of the material forces and properties at work in the former. "Thought,

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—'How are these physical processes connected with the facts of consciousness?' The chasm between the two classes remains still intellectually impassable." (*Address to the British Association at Norwich*.) Professor Huxley has, in one of his better moments, endorsed this doctrine. (Cf "Mr Darwin and his Critics," *Contemp. Rev*. Nov. 1871.) But the passage tells equally against the "function" view of the next objection, advocated at times by Mr Huxley himself

[4] Broussais. Cf. Margerie, op cit. p. 180.

[5] Prof. Huxley, *Contemp. Rev*. Nov. 1871. Cf. Herbert's *Modern Realism Examined*, p. 41.

[6] Huxley, *Macmillan's Magazine*, May, 1870.

spirit, soul, are not material, not a substance, but the effect of the conjoined action of many materials endowed with forces or qualities. . . . In the same manner as the steam-engine produces motion, so does the organic complication of force-endowed materials produce in the animal body effects so interwoven as to become a unit, which is then by us called spirit, soul, thought. The sum of these effects is nothing material; it can be perceived by our senses as little as any other simple force, such as magnetism, electricity, &c., merely by its manifestations."[7]

This is a fair example of the random methods of reasoning employed by materialists. What is the resultant of the aggregate of forces accumulated in the steam-engine? It is nothing more nor less than movements of portions of matter, all perceptible by the external senses. If the engine drags a train, we may speak of the motion of the latter as being a single effect, but the occurrence has only a moral or metaphorical unity. It is really a series of events, a vast assemblage of parts of matter moving other parts. Now, when we turn to the living organism, we find, indeed, a similar set of movements and displacements of matter, but we find also in addition to these physical occurrences, and differing from them, as Mr. Spencer says, "by a difference transcending all other differences," the very phenomenon to be explained, "spirit, soul, thought." Granting, then, for the sake of argument, similarity between the material forces collected in the steam-engine and in the human body, at most the legitimate inference would be that the various movements and organic changes observable in the body were the outcome of its material energy; but there is not a shadow of a reason for attributing the distinctly new phenomenon of consciousness to that energy. In the final sentence another piece of confused and inconsistent thinking is introduced. Thought is there likened to the "*simple forces*, magnetism, electricity," &c. But the only known manifestations of electricity, magnetism, &c., consist in the production of movement. Consciousness, however, is revealed in a different way. Of the nature of electricity or magnetism as a simple force we know nothing. The word is merely an abstract term to denote the unknown cause of a certain species of movements coming under external observation. On the other hand, of mental states we have immediate internal experience, and that experience discloses conscious life as centred in one single being, in a peculiar indivisible unity utterly repugnant to the composite nature of a material subject.[8]

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[7] *Kraft und Stoff* (Trans.), pp. 135, 136. Cf. Herbert, op. cit. pp 50—52.

(4) Against the spirituality of the principle of thought, it was objected by Locke that matter has a great variety of wonderful and unlike properties, that our knowledge of these is still very limited, and, consequently, that we are not justified in asserting that matter could not be the subject of intellectual activity. Further, such a statement is derogatory of the Divine power, implying that God Himself could not endow matter with the faculty of thought. We most readily admit our knowledge of matter to be still very inadequate, and we allow that matter possesses many unlike qualities. But it is not from mere dissimilarity in character subsisting between mental and material phenomena—although this dissimilarity "transcends all other differences"—that we infer a distinct principle. It is from the absolute contrariety in nature which sets them in opposition. In spite of the imperfect condition of our acquaintance with matter, we can affirm with absolute certainty that some new properties, *e.g.* self-motion, can never be discovered in it. It is, too, no reflexion on the power of God to say that He cannot effect a metaphysical impossibility, such as the endowment of an extended substance with the indivisible spiritual activity of self-consciousness would be.

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[8] "Fifty million molecules, even when they are highly complex and unstable phosphorized compounds, gyrating in the most wonderful fashion with inconceivable rapidity, certainly do not constitute *one thing*. They do not, then, by molecular constitution and activities, even constitute a physical basis which is conceivable as a representative or correlate of one thing." (Ladd, op cit p. 595.)

(5) The spirituality of the soul, it is said, is disproved by the absolute dependence of mental life on bodily conditions—a dependence more effectively established by Physiology and Pathology each succeeding year. We find, it is asserted, that intellectual ability varies in proportion to the size of the brain, its weight, the complexity of its convolutions, and the intensity of its phosphorescent activity. Mental powers develope concomitantly with the growth of the brain, and similarly deteriorate with its decay or disease: "The doctrine of two substances, a material united with an immaterial, . . . which has prevailed from the time of Thomas Aquinas to the present day, is now in course of being modified at the instance of modern Physiology. The dependence of purely intellectual operations such as *memory* upon material processes has been reluctantly admitted by the partisans of an immaterial principle, an admission incompatible with the isolation of the intellect in Aristotle and Aquinas. . . . Of the mind apart from the body we have no direct experience and absolutely no knowledge. . . . In the second place, we have every reason to believe that there is in company with all our mental processes an *unbroken material succession*."[9]

This argument in behalf of Materialism gains much of its weight with many minds from the belief that those who formerly defended the spirituality of the soul conceived it as an independent entity standing out of all relations to the body. The allusion to St. Thomas in the passage just quoted is an expression of this belief. Recent advances in physiological knowledge, it is imagined, have disproved this supposed mutual isolation of the two substances, consequently the inference is that modern science has rendered untenable the spirituality of the soul. Now, in the first place, this historical theory is utterly false. It is mainly since the rebellion against Scholasticism, inaugurated by Descartes, that this exaggerated antagonism between soul and body has been advocated by anti-materialist thinkers. The central idea of the Peripatetic Psychology, as expounded by every leading writer, from Albert the Great to Suarez, is the conception of the soul as *substantial form* of the body—a view which implies the most intimate union and interdependence between these two co-efficient principles of man.

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[9] Dr. Bain. *Mind and Body*, pp 130, 131. Similarly Maudsley, op. cit. c. ii.

Consequently, so far from ignoring or admitting "with reluctance" the influence of bodily conditions on mental operations, the greatest emphasis is laid upon the fact, as any one possessed of an elementary acquaintance with the writings of St. Thomas or any other scholastic, on the appetites, imagination, sense-perception, memory, &c., must know. Mediæval philosophers were just as well aware as our wise men of to-day that age, bodily fatigue, the processes of digestion, disease, stimulants, and the like, affect our mental operations; and in taking these into account they had to meet by anticipation every difficulty that has or can be raised from the physiological quarter. Physiology has brought to light no facts of essentially novel significance in their bearing on this problem. It has, indeed, given us a better knowledge of the material structure of the brain and nervous system, and of the occurrence of special processes there in conjunction with mental states; but the general principle of interdependence between mind and body, illustrated in such facts, was forced on the human intellect in its very earliest attempts at psychological speculation. Moreover, it should be remembered that Cerebral Physiology is still in a very backward and hazy stage, that the positive knowledge we have of the character of neural processes is of the most meagre description, and that the vivid descriptions of currents and discharges of nervous energy, of neural tremors, and of molecular waves along various fibres, so frequent in materialistic works, are, in the present state of actual science, the merest conjecture.[10]

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[10] It is not too much to say that Cerebral Physiology has as yet done *absolutely nothing* towards even the definition of the physiological concomitants of the higher mental operations, whilst its success as regards the lowest and simplest forms of conscious life is

In the next place, assuming for the moment that all the assertions regarding the intimate relations between neural conditions and mental life were accurately true, and in no way exaggerated, how would this prove more than an extrinsic dependence of the soul on the body which it enlivens: "For, suppose for an instant that human thought was of such a nature that it could not exist without sensations, without images and signs (I do not mean to say that no kind of thought other than this is possible); suppose, I repeat, that such were the conditions of human thought, is it not evident that a nervous system would be then required to render sensation possible, and a nervous centre to render possible the concentration of sensations, the formation of signs and of images? According to that hypothesis, the brain would be the organ of imagination and of language, without which there would be no thought for the human mind."[11] In such a case—and this is precisely the theory of St. Thomas—whatever affects the organ or instrument of the mind will naturally modify mental operations. Now, we have shown in chapter xv. how intellect

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still of a very humble, not to say dubious character. Of the theory of certain scientists, "that *all* mental phenomena, whatever their varied characteristic shading, have exact equivalents, as it were, in specific forms of the nerve commotion of the living brain," Professor Ladd remarks: "Our first impression on considering the foregoing way of accounting for mental phenomena is that of a certain surprising audacity. The theory, standing on a slender basis of real fact, makes a leap into the dark which carries it centuries in advance of where the light of modern research is now clearly shining." He demonstrates conclusively that even in such inferior and comparatively simple problems as the determination of the physiological conditions of variations in the quantity, quality, and time-rate of sensation, "almost everything needed for an exact science of the relations of the molecular changes in the substance of the brain and the changes in the states of consciousness, is lamentably deficient;" whilst as regards the neural conditions of spiritual acts, such as the conviction of the principle of causality, or the idea of substance, he shows that science must remain in absolute ignorance. (Cf *Physiological Psychology*, pp. 592—597.) On the unsatisfactory condition of science on this subject, cf. also Janet's *Materialism of the Present Day*, pp. 132, 133.

[11] Janet, op. cit p 134.

requires as an essential condition the operations of sense and imagination, and is therefore extrinsically dependent for its materials on these organic faculties. But, on the other hand, study of the character of its activity has also proved to us that the spiritual power transcends the material order, and that this power is in its inner nature essentially and intrinsically independent of matter. The continuity of the organic process, if proved, would be accounted for by the exercise of the imaginative faculty, which the intellect requires as a condition of its operation. That neither imagination nor organic memory are, as Mr. Bain implies, *intellectual* activities, must have been evident in the earlier part of this work.

In answer to the sage observation that we never find mind apart from body, it is sufficient to reply that concomitance does not prove identity, and that at all events we often find body without mind. Whenever we meet with a new group of properties or effects utterly incapable of being accounted for by previously known causes, we are bound, according to the most universally recognized canons of physical science, to assume a new cause for these phenomena.[12] As regards the part of the difficulty which lays stress on the relations between the character of the brain as a whole and intellectual ability, whilst we readily admit that the vastly superior mental faculties of man would lead us to anticipate in his case a more perfect instrument than is to be found in the brute kingdom, it is worthy of notice that science has as yet completely failed to assign any distinct property of man's brain by which his intellectual superiority is marked.[13]

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[12] Cf. Lotze, *Microcosmus*, Vol. I p. 149.

[13] "Since evidently the *absolute* weight of the brain cannot be the measure of intelligence, because if so the elephant and the whale ought to excel the greatest human genius, therefore refuge has been taken in greater *relative* weight . . . Since again in this respect man is surpassed by several of the smaller birds (*e.g.*, the titmouse), and the adult by the child, the multiplicity, complexity, and thickness of the convolutions on the surface of the brain are to afford the solution. But since on this principle the ox ought to distinguish itself by mental capacity, appeal is made to the chemical constitution of the cerebral substance, and the excellence of man's intellect

(6) It has been asserted that the arguments from Memory and an abiding Personal Identity amid continuous change in the substance composing the material organism do not possess any real force, that "the body has its identity too in *type* or form, although the constituent molecules may change and be replaced."[14] If we cut our name deep in a young poplar tree, and return after fifty years, the same word may still be found engraved there; similarly a scar received in childhood will persist to the end of life. Consequently, although the individual molecules composing the brain change rapidly, the new elements may fall into the places of the old, and any modifications or dispositions to special modes of vibration imprinted by past experience will thus be conserved. In this way, by the reproduction of former thoughts, Memory and Personal Identity are secured amid a continuous flux of matter.

The more, however, careful attention is devoted to this objection, the more thoroughly convinced, we are assured, the mind will be of the hopeless failure of the materialist or phenomenalist solution of the problem.

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attributed to the richness of his brain in phosphorus; but here again the superiority of the human cerebrum is disputed by two proverbially stupid animals, the sheep and the goose." (Gutberlet, *Psychologie*, p 255) On the relative weight, size, &c., of brains, cf Ladd, op. cit. Pt. II c i.; also Surbled, *Le Cerveau*, cc. iv.—xii. The latter writer gives some very interesting statistics on this point. Thus, the average cubic capacity of Parisian skulls—which are larger than those of most European nations—is estimated to-day at about 1,559$_{cc}$, whilst six skulls of "Cave-men," assigned to the Palæolithic period, average 1,606$_{cc}$, and a collection of skulls of ancient Gauls reach 1,592$_{cc}$. This does not seem very favourable to Evolution. Again, as regards the weight of the brain: Cuvier used to be triumphantly cited by materialists, as an example of great intellect, due to a very heavy brain—1.830 grammes (about 4 lbs.). The average British brain is about 1,400 grammes (3 lbs.). But in recent times cases of brains exceeding that of Cuvier have been found combined with very moderate abilities. A still more surprising fact is that Gambetta, whose mental gifts French materialists, at all events, will be the last to deny, was possessed of actually only 1,160 grammes (2½ lbs.) of cerebral material, an endowment inferior to that of the lowest tribes of savages Undoubtedly, great intellectual power is, as a rule, accompanied by a large brain, but there are very serious exceptions to the law.

[14] Dr. Bain, *Mind and Body*, p. 196.

The word *identity*, as Dr. Bain allows,[15] is applied loosely in various senses. We speak of the identity of the English people since the Norman Conquest, and of the identity of a regiment, a bank, or a newspaper during a long period, though not a single constituent of the object persists unchanged. But in none of these cases have we anything approaching to what we call *personal identity*. There is an apparent external unity which binds under a common notion really different sets of things or events. The aggregate of elements composing the object at one time, may be in every particular different from what they were at another. There is no real identity in such a case, and rational memory or self-consciousness would be impossible to a being constituted solely of such changing materials.

As regards the mark on the tree, abstracting from the Peripatetic doctrine of a single vital principle persisting throughout the life history of every organism —a question beside the present discussion—we may assert that the only sameness which connects the incision of my name on the young sapling with that found on the tree of thirty years later, lies in the extrinsic circumstance that similar thoughts will be produced in minds which contemplate the impressions at the different periods. Identity in the physical impressions themselves there is none. The imprinted name originally consisted merely of certain vacant spaces at a certain height from the ground, and surrounded by portions of timber. But the exact place where the former empty interstices were situated is now occupied by the wood of the tree, while six inches higher, and spread out over a much larger space, and surrounded by new timber, is what we call the old impression, because it arouses in the mind a representation of the same object as formerly. The identity of a scar on the human body is of a like character. Now, modifications in the cellular substance of the brain produced on the occasion of sensations, were they similarly preserved, would retain no more real unity with the original impression than is found in the case of the poplar tree. To argue that the present modification o the brain may be the groundwork of a disposition to vibrate in a manner similar to that occasioned by the original impression, and so may evoke a similar mental state, is to miss the precise point to be explained. The occurrence of a new vibration or mental state *like* to the original cannot be said to constitute a remembrance of the former, any more than to-day can be said to remember this day last week or last year. There is required, in addition to the detached events, a persisting indivisible being which connects them.[16]

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[15] *Moral Science*, Appendix, p. 96

There are certain other scholastic difficulties against the simplicity and spirituality of the soul, which possessed some weight and popularity during the middle ages, but for which we can afford only brief space here. Among the chief of this class are the following: (*a*) The soul cannot be simple and indivisible, because it is present throughout an extended body. (*b*) The soul moves the body, but such a result can only be effected by contact, which would be impossible if the soul did not *touch* the body. This, however, implies that the soul itself must be *extended*. (*c*) A simple spiritual soul is *inconceivable*. (*d*) The soul is the substantial form of a material body, and a form is of necessity absolutely dependent on its material subject. Therefore the soul is not spiritual.

We may reply in scholastic style: (*a*) A simple, indivisible force, substance, or energy cannot be *quantitatively* present—that is, having parts alongside of parts—throughout an extended subject: *Allowed*. It cannot be *essentially* present, that is, by exercise of its virtue or influence ubiquitously in such a subject: *Denied*. Natural Theology proves that God is thus essentially present, exercising His power everywhere in the universe, yet not in an extended manner. (*b*) We simply deny that motion can be produced in a body *only* by physical contact of one extended surface upon another, or that a simple force or energy cannot affect the condition of matter. (*c*) If inconceivable means incapable of being pictured by the imagination: *Allowed;* but then many things unimaginable in this sense are held to exist. If inconceivable means self-contradictory or positively unthinkable: *Denied.* (*d*) Although the human soul is, in the Scholastic theory, the *form* of the body, yet as St. Thomas says, it is not *completely immersed* in its material subject; that is, in certain of its functions, such as intellectual cognition and volition, the soul exceeds the range of activity possible to a merely corporeal form.

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[16] "I may be tossed about between the most contrary ideas, the most opposite sentiments, without ceasing to be myself; and, on the contrary, two men thinking the same thing, as, for instance, the series of numbers, will not become for that reason one and the same man; several chords producing the same note are not the same chord. Thus, the consciousness of personal identity is not explained by the identity of vibrations any more than by the persistence of form." (Janet, op cit. pp. 141, 142.)

Readings.—On the subject-matter of the two last chapters, cf. St. Thomas, *Sum.* i. q 75. On the Substantiality of the Soul, cf. John Rickaby, *Metaphysics,* pp 245–260, Balmez, op. cit. Bk. IX. cc 6—9 and 11, 12; Margerie, op cit. pp 128–191; Janet, *Materialism of the Present Day,* c. vii.; Ladd, *Physiological Psychology,* Pt. III. cc. i. and iv.; Kleutgen, op. cit. §§ 791—807.

CHAPTER XXII.

RECENT THEORIES CONCERNING THE SOUL: THE DOCTRINE OF THE "DOUBLE-ASPECT."

THE value of a theory is never fully apprehended until it is compared with the most plausible counter-hypothesis. Accordingly, the force of the arguments by which the reality of an indivisible spiritual soul is proved cannot be fairly estimated until we have taken a rapid view of the rival doctrine put forward by the ablest opponents at the present day.

THE DOCTRINE OF THE DOUBLE-ASPECT.—The new faith has been aptly styled the *Double-Aspect Theory*. Marked by rather important differences in the hands of its various exponents, this view in all its forms adheres to one cardinal tenet—*that Mind and Body are not two distinct realities, but merely two "aspects," "sides," or "phases" of one and the same thing*. The late Professor Clifford, Dr. Bain, Mr. Spencer, G. H. Lewes, and Professor Huxley are amongst the best known advocates of this doctrine here at home, and we will seek to briefly explain and examine their views.

Professor Clifford, with characteristic hardihood, invented the term *mind-stuff*, to denote the material out of which he asserts that human minds are formed. According to him there is attached to every particle of matter in the universe a bit of rudimentary feeling or intelligence. When the molecules of matter come together in certain forms and proportions, the attached atoms of mental life fuse into a complete self-conscious mind.[1] Neither the molecules of matter, however, nor the appended morsels of mind can have any influence on the other. At least, this is Clifford's doctrine at times: "The physical facts go along *by themselves*, and the mental facts go along *by themselves*. There is a parallelism between them, but there is *no interference* of one with the other."[2]

The only arguments suggested in defence of these doctrines are the assertions: (1) that Physiology has established an absolute and complete parallelism between psychical and physical facts: (2) that physics has proved the impossibility of any mutual interaction between them; and (3) lastly, the fact that Clifford's theory is essential to the supposed truth, now taken as demonstrated, nay, almost as axiomatic, that all of us, both mind and body, have been developed out of inferior organic forms and ultimately out of inorganic matter. Thus in his own words: "The only thing that we can come to, if we accept the doctrine of Evolution at all, is that, even in the very lowest organisms, even in the amœba which swims in our own blood, there is something or other inconceivably simple to us, which is of the same nature with our consciousness, although not of the same complexity, that is to say (for we cannot stop at organic matter, *knowing as we do* that it must have arisen by continuous physical processes out of inorganic matter), we are obliged to assume, in order to save continuity in our belief, that along with every motion of matter, whether organic or inorganic, there is some fact which corresponds to the mental fact in ourselves."[8]

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[1] "When molecules are so combined as to form the film on the under-side of a jelly-fish, the elements of mind-stuff which go along with them are so combined as to form the faint beginnings of sentience When the molecules are so combined as to form the brain and nervous system of a vertebrate, the corresponding elements of mind-stuff are so combined as to form some kind of consciousness. . . . When matter takes the complex form of the living human brain, the corresponding mind-stuff takes the form of human consciousness having intelligence and volition" ("On the Nature of Things in Themselves," *Mind*, Vol. III. pp. 64, 65)

[2] *Fortnightly Review*, Dec. 1874, p. 728

We show elsewhere that defenders of a spiritual philosophy are not necessarily opposed to Evolution, when that hypothesis is properly limited and defined: but Clifford's statement that *we know* all living beings "must have arisen by continuous physical processes out of inorganic matter," is almost amusing for its audacity. It is extravagantly untrue. An overwhelming weight of scientific evidence and authority establishes the fact that *life is never evolved from inorganic matter.* Even scientists as unlikely to be prejudiced against the doctrine of abiogenesis as Professor Huxley, we shall see in a future chapter, are forced to confess that evidence of a single case of spontaneous generation has never yet been adduced. As regards the other arguments, we may for the present merely call attention to the truth that even were complete parallelism, in the sense of reciprocal correspondence between every form of mental state and definite neural processes, fully demonstrated—utterly hopeless though the prospect of this result be—absolutely nothing would have yet been effected towards the reduction of mental activity to a mere appendage of such nervous changes. As for the statement, that science has proved the non-interference of the two sets of phenomena, it is both false in itself and in conflict with Clifford's own teaching on other occasions, and with that of the school to which he belongs. That school is at least unanimous—however illogical—in teaching that bodily states, at all events, determine changes in our mental states.

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[8] *Fortnightly Review*, p 731.

Dr. Bain does not appear to go quite so far as Clifford. Mental life in man he considers to be a "subjective aspect" of bodily changes; but that there are "subjective aspects" attached to all movements of every kind of matter he has not the courage to assert. This position, of course, leaves on his hands the awkward difficulty—why should this very curious "subjective aspect," of which there is no trace in the rest of the material world, suddenly manifest itself in the case of those portions of the universe which we call living beings? To atone, however, for the deficiency just mentioned, he is vigorous enough in insisting that mental life is but an "aspect" or "side" or "face" or "phase" of neural changes, and that therefore it has no reality independent of such changes, and no power of affecting their course. He strongly objects to the phrase, "Mind and body act upon each other." There is merely a continuous series of physical events with inactive subjective "aspects."[4] The neural changes are determined solely by neural antecedents: the material sequence carries with it the mental sequence, but cannot in the slightest degree be modified by the latter. Nevertheless, mind and body are to be conceived as a "two-sided cause," or as "undivided twins."[5]

Mr. Herbert Spencer seems to hold approximately the same view as Dr. Bain, though his general system of Evolution would appear to lead to Clifford's doctrine of *mind-stuff.* Mental states. he allows, cannot be identified with nervous processes. The two sets of facts are separated by "a difference which transcends all other differences." All forms of consciousness are, he teaches, resolvable into elementary units of feeling akin to electric shocks. These correspond to pulses of molecular motion transmitted through the sentient nerves.

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[4] "We have every reason for believing that there is in company with all our mental processes, *an unbroken material succession.* From the ingress of a sensation, to the out-going responses in action the mental succession is not for an instant dissevered from a physical succession." (*Mind and Body,* p. 131.)

[5] "There is in fact no rupture of nervous continuity. The only tenable supposition is, that mental and physical proceed together as *undivided twins* When therefore we speak of a mental cause, a mental agency, we have always a *two-sided cause;* the effect produced is not the effect of mind alone, but of mind in company with body. That mind should have operated on the body is as much as to say, that a two-sided phenomenon, one side being bodily, can influence the body; it is after all *body acting upon body* . . . The line of mental sequence is thus, not mind causing body, and body causing mind, but ***mind-body*** giving birth to ***mind-body;*** a much more intelligible position." (Op. cit. pp. 131, 132.)

But the sensation of shock made known through our inner consciousness can never be analyzed into the physical movement observable, if at all, by our external senses.[6] In spite, however, of the strikingly incompatible character of physical and mental processes, Mr. Spencer finally concludes that both are but "faces" or "aspects" of one and the same substratum. "Mind (*i.e.*, consciousness) and nervous action are subjective and objective faces of the same thing."[7] The ground for this unification of mental and physical phenomena is the same as that urged by Clifford and Dr. Bain—the intimate correspondence between the two series. Regarding the nature of this one *ultimate reality*, of which mental and bodily activities are but diverse aspects, Mr. Spencer professes nescience. It is absolutely unknowable.[8]

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[6] "When the two modes of Being which we distinguish as *subject* and *object* have been severally reduced to their lowest terms, any further comprehension must be an assimilation of these lowest terms to one another, and, as we have already seen, this is negatived by the very distinction of subject and object, which is itself the consciousness of a *difference transcending all other differences.* So far from helping us to think of them as of one kind, analysis serves but to render more manifest the impossibility of finding for them a common concept—a thought under which they can be united. Let it be granted that all existence distinguished as *objective* may be resolved into the existence of units of one kind (material), . . . and let it be further granted, that all existence distinguished as *subjective* is resolvable into units of consciousness, similar in nature to those which we know as nervous shocks, . . . can we think of the subjective and objective activities as the same? Can the oscillation of a molecule be represented in consciousness side by side with a nervous shock and the two be recognized as one? No effort enables us to assimilate them. *That a unit of feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring the two into juxtaposition*" (*Principles of Psychology*, Vol. I. § 62)

[7] *Principles of Psychology*, p 140

[8] An obvious remark here, is that this Agnosticism is invoked at a very convenient stage Why not just one step earlier? Why not honestly confess that the incompatible characters of material

DISPROOF OF THE DOCTRINE.—Each form in which the Double-Aspect theory has been advocated; stands exposed to numberless special difficulties, but here we have room to touch only on a few of the most general objections, which tell universally against every representation of the doctrine.

1. The advocate of the new system must accept either of two alternatives. He must, with Clifford, look upon this "double-aspectedness" as a universal property of matter; or he must, with Dr. Bain, limit it to living beings. In the first case he has to make an absolutely incredible assumption without a scrap of evidence in its favour. In order to do away with the souls of a few living beings, who do not constitute the one-millionth part of the physical world, he has to assign a mental life to every grain of sand and drop of water on the earth. He has to ascribe to every molecule of matter in the universe something the nature of which cannot be imagined, and of the existence of which neither the experiments of science nor the observation of mankind has ever discovered the slightest trace. Such is the modest demand on our powers of faith made by *scientific* writers—who can, when it suits them, be so exacting in their demands for proof.[9]

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and mental phenomena point to *two* substrata, to *two* beings, intimately related, but of whose noumenal nature we profess ignorance? If this *Reality* is absolutely unknowable, why may it not be a *Duality*? Such would appear to us the logical course for the agnostic, but we suppose the human soul must be got rid of at all costs

[9] Professor Tyndall, though usually confused and self-contradictory when he wanders into Metaphysics, can see through the superficiality of this *Double-aspect* theory: "It is no explanation,'

Should he adopt the second alternative, the defender of this double-faced theory has to explain the unaccountable appearance of the subjective aspect where it presents itself in conscious beings. It is a new phenomenon, differing from all previously existing phenomena by "a difference that transcends all other differences." Whence does it come? Physicists will not admit creations out of nothing, and neither will they allow that consciousness is merely a new form of the material energy of the universe, even were such a transformation conceivable. If material force is transmuted into mental states, then, unless the scientist is prepared to abandon the law of the conservation of energy, the reverse operation must also hold, and mental states must be capable of issuing forth in the form of physical action. Mind would thus be capable of acting upon matter:[9] but this is precisely what all sects of Materialism unanimously declare to be impossible. That mental states cannot interfere with material processes is the most fundamental article of their creed. Accordingly, whichever of the two necessary alternatives he accepts, the anti-spiritualist finds himself in an equally unsatisfactory position.[10]

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says he, "to say that objective and subjective are two sides of one and the same phenomenon Why should the phenomenon have two sides? There are plenty of molecular motions which do not exhibit this two-sidedness. Does water think or feel when it rises into frost ferns upon a window pane? If not, why should the molecular motions of the brain be yoked to this mysterious companion consciousness?" (Cf. Mallock, *Is Life worth Living?* p. 180.)

[10] Cf. Herbert, *Modern Realism Examined*, p. 71. Sects 7–12 contain some very penetrating criticism of this theory.

2. When we set ourselves to inquire more closely into the nature of this hypothetical "stuff." out of which intelligence, emotion, and volition are alleged to be manufactured, the absurdity of the new doctrine is brought still more closely home to us. What is this material? Is it conscious? Most supporters of the theory, we believe, would answer, No. How then can it be spoken of as like our mental life? Does a multiplicity of unconscious acts constitute an act of conscious intelligence? If, on the other hand, we ascribe real but incipient consciousness to the molecules of matter, and if mental life is the outcome of their combination, it would seem that a mental existence ought to belong to all material objects with which experience presents us. Have plants, or their leaves, or the various parts of the human body minds of their own? Is a new steam-tug a thing of joy to itself? What are the emotions of a deserted coal-mine? Even, however, were these allotments of subjective-aspect really proved to be attached to all molecules of matter, they would not solve the problem. We have already demonstrated the spirituality of man's intellect and will, and we have shown the peculiar, indivisible character of supra-sensuous acts, such as conception, judgment, reasoning, and self-consciousness; but in doing so we have disproved the double-aspect theory. The unity of consciousness cannot be an amalgam of morsels of subjective-aspect essentially dependent on extended molecules. Simple abstract ideas, acts of judgment and self-consciousness, free volitions, cannot be a mere compound

of electric shocks, or of elements of unconscious-consciousness, whether simultaneous or successive. They are the indivisible acts of an indivisible principle, and intrinsically independent of matter.[11]

3. Advocates of all forms of the Double-aspect theory, in fact of all shades of Materialism, agree at least in this, that mental states cannot act on the body. The main object in describing mind as an *aspect* or *phase* of a nervous process is to emphasize its incapacity for the production of any physical action. If it is once admitted that mental agency is really operative *ad extra*, that conscious states do really cause bodily movements, then the one great excellence claimed for the monistic theories is abandoned. The existence of an efficient energy distinct from material force is admitted, and the most objectionable tenet of the spiritualist philosopher is granted. It is for this reason that Mr. Bain insists "that there is no rupture of nervous continuity;"[12] and Clifford, that "the physical facts go along by themselves, and the mental facts go along by themselves." The admission of a second

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[11] Analogical inferences from the combinations of physical forces to the fusion of mental states mislead, not only from the dissimilarity of the two classes of events, but from inaccuracy in describing the operations of the former. In nature two abstract "forces" or "motions" never coalesce to form a resultant. What really happens is that two *bodies*, moving or at rest, produce a motion of a *body* or *bodies* Now movements or forces existing in this concrete way are not simple but divisible into parts seated in the various molecules of the body. But in *thought*, especially in the unity of consciousness involved in judgment and self-knowledge, we have a real concrete indivisible activity, which accordingly must pertain, not to an assemblage of separate molecules, but to a single simple agent (Cf Lotze's *Metaph.* §§ 241, 242, and *Microcosmus*, Bk. II. c. i §§ 5, 6.)

[12] Op. cit. p. 131.

agent capable of interfering with, or modifying in the most infinitesimal degree the course of material events, is fatal to all anti-spiritualist systems.

Now, we seriously doubt whether the stupendous consequences in regard to all our convictions, scientific as well as vulgar, involved in this principle, have ever been fairly realized by materialistic writers. If man's conscious life is merely a subjective phase, an incidental aspect of physical processes, if all bodily changes go on and have ever gone on uninterfered with by mental states, what proof have we that other minds than our own exist? We at present infer other minds because we look on certain actions, signs, and expressions of our fellow-men as *effects* of certain feelings and volitions akin to our own. But, according to the new theory, such actions are nothing of the sort; they are merely the effects of previous neural groupings, and would have taken place just the same whether the mental states accompanied them or not. These latter are only appended inactive "phases" which can effect "no rupture of the nervous continuity." On the new theory the gestures, words, and actions of other men would be precisely the same if this subjective-aspect, called consciousness, had no existence.[18]

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[18] "It is admitted that the feelings of others cannot themselves be perceived by any sense; certain bodily movements only are perceived, which are supposed to indicate feelings. It is admitted, further, that these movements proceed with the strictest physical sequence, in other words, that in the absence of feelings they would take place just as they do It follows that mind leaves no trace of its presence in the movements *by which alone* it is revealed. What is this but to say that it is a pure supposition, without a single vestige of evidence? The only evidence science can have of anything is that it is, or effects some change, some movement

But reflexion discovers consequences still more surprising. The whole past history of the world, the building of cities, the invention of machinery, the commerce of nations, the emigrations of peoples, the rise and fall of civilizations, all that has been done on this planet by human beings would have happened in precisely the same way if there had never awoke to consciousness a single human mind. All the pain and sorrow, all the joy and gladness, all the love and anger that we suppose to have governed the world's history might never have been, and that history *would have run exactly the same course.* The neural groupings, the cerebral movements, which were the true, ultimate, and *only* causes of the various actions of human beings, have never once been interrupted, modified, or interfered with by those "aspects," or "phases," which we call conscious states, since the first man appeared on the earth. Given the original collocation of the material atoms from which the present cosmos has been

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Whatever effects no change, makes no sign in the material world, is to physical science non existent" (Herbert, op. cit p. 113.)

It should be borne in mind that the present argument does not involve any particular metaphysical theory of causality. Accepting even Mill's definition of causation as *invariable succession,* our contention would still retain its force. The defender of the double-aspect doctrine may of course *instinctively* attribute minds to other human bodies, but he has no rational grounds for believing in such minds, consequently he cannot maintain mental states to be constant *concomitants* or *conditions* of physical actions. The latter he asserts are unaffected by the former, and would have been precisely the same without them If the mind cannot modify or determine bodily movements, then, clearly, it contributes nothing to the wonderful works of civilization, and, so far as these latter are concerned, might never have been. This is one of those curious but strictly logical consequences of Materialism, which its supporters do not care to force on public attention.

evolved, and every event, down to the least incident of our daily life, was therein rigidly and sufficiently determined, though no single act of intelligence or volition had ever wakened into life.

Materialistic writers lay great stress on the fact that decapitated frogs use their legs to rub off irritant acids from various parts of their body, and that in other animals when the spine has been severed, the lower limbs often respond to stimuli by appropriate movements, though all consciousness of the exciting impression must be absent. Such curious occurrences are undoubtedly worthy of interest and investigation, but we must ask reasonable men to cast their eyes back over the pages of history before they give in their belief to the dogma that the human mind is merely a concomitant aspect of necessary physical processes.[14]

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[14] Herbert states the argument with much force: "It is clearly impossible for those most consistent authorities of science, who teach that consciousness is never the cause of physical change, to dispute that the actions, words, and gestures of every individual of the human race would have been exactly what they have been in the absence of mind, had mind been wanting, the same empires would have risen and fallen, the same battles would have been fought and won, the same literature, the same masterpieces of painting and music would have been produced, the same religious rites would have been performed, and the same indications of friendship and affection given. . . . It is affirmed that the consequences just drawn are strictly necessary deductions from the materialistic conception of the universe consistently interpreted by physical science. Pushed to its proper logical issues, that conception leaves the universe without thought or feeling anywhere Materialism must bear the burden of that incredible consequence" (Op cit p 133) The reader, however, should distinguish between Herbert's criticism of anti-spiritualist writers and his own positive doctrines. The latter are very unsatisfactory, and he often seems to confuse the proper teaching of physical science with inaccurate representations of it by materialistic authors.

4. Another absurd consequence of all forms of Materialism, already noticed in dealing with a previous question,[15] can only be recalled to the student's recollection here. What precisely is the meaning of the statement that the human mind is merely an "aspect" or "phase" of a neural process, if the external world—including the nervous system—is itself nothing but a cluster of muscular feelings and ideas of such feelings? What exactly is the "subjective side" of a cerebral tremor, if, as Dr. Bain, Mill, and all consistent sensationalists affirm, the doctrine which supposes a "material world, in the first instance detached from perception, and, afterwards, coming into perception by operating upon the mind, involves a contradiction?"[16]

5. Finally, the entire vocabulary used in the exposition of the theory, is an ingenious collection of nonsensical or sophistical terms. Hyphens, ambiguous ephithets, and cloudy metaphorical language are profusely employed in pretended explanations of facts of which no real account is given. What idea is really conveyed to the mind by such words as "double-aspect," "mind-stuff," "two-sided cause," "subjective and objective sides of the same fact," "undivided twins," "double-faced unity"? We know what is meant by "stuff" when we talk of the materials out of which a table or a suit of clothes is made, but the word becomes absolutely unmeaning when spoken of an intellectual idea, like that of *Being*, or of the simple cognitive act of self-consciousness. "Double-aspect" signifies, or

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[15] Pp. 106, 107

[16] Dr Bain, *Mental Science*, p 198.

ought to signify, two views or points of viewing what is known to be one and the same thing; but here we have two sets of facts or things "differing by a difference that transcends all other differences." Surely, then, to speak of the unextended mind and the material brain as "aspects" of the same fact, is merely a childish attempt to deceive ourselves with half-understood words.

Similarly, the terms, "objective side of a feeling" and "subjective side of a nervous current," when intended to be taken as a philosophical explanation, and not as mere metaphorical phrases expressive of ignorance, are a dishonest abuse of language. "The expression, 'a two-sided cause,' is one of those figures of speech which are the crutches of Metaphysics, and enable halting theories to make progress. 'We find the same difficulty in realizing in our mind the conception of a *two-sided cause* as we have in realizing a blue sound or a three-sided motion."[17] A cause is defined in Dr. Bain's own work, as "the entire aggregate of conditions or circumstances requisite to the production of the effect."[18] But if mental states form part of the aggregate of conditions *required* to effect a given movement, then mind is no longer a mere "aspect" of physical processes: it is a *really efficient agent* which occasionally "ruptures the nervous continuity," and Mr. Bain's doctrine, in company with all other forms of materialistic monism, at once falls to the ground. If mental states do not co-operate in the production of changes, then they must not be described as part-causes or the "side" of a cause, without self-contradiction.

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[17] Cf. M. Guthrie, *On Mr Spencer's Unification of Knowledge*, p. 248.

[18] *Inductive Logic*, p. 19

So much for the highest development of the anti-spiritualist creed in the hands of its ablest advocates at the present day. Its claims to acceptance are its simplicity, its intelligibility, its consistency; in a word, its scientific character. Avoiding the dualism inherent in every spiritualist theory, resting on the rock of experience, and assuming nothing without rigid proof, it professes to give an adequate and satisfactory account of both moral and physical worlds by means of a single principle. Reflexion on the considerations which we have here briefly indicated will, we believe, lead towards an accurate estimate of the extent to which its promises have been fulfilled. There may be difficulties attached to the doctrine of a spiritual principle distinct from the body Our faculties are finite, and there will always remain in our present existence a large residue of unsolved problems. But when the true nature of the best and most popular alternative theory is clearly apprehended, when its real character is fairly grasped by the unprejudiced mind, we have little doubt as to what must be the decision.

Readings.—Some very acute criticism of recent forms of Materialism is to be found in Herbert's ***Modern Realism Examined***, §§ 7—13, and 16—19. M Guthrie's work, *On Mr. Spencer's Unification of Knowledge*, c. iv § 3, contains good remarks on the same subject Cf. also Ladd, op. cit. Pt. III c iii §§ 15—24, and c. iv. §§ 11—15, as well as the places referred to in last chapter. Chapter ix. of Mr. Mallock's work, *Is Life Worth Living?* exposes with much skill the consequences of the Positivist doctrine, and the inconsistency of its advocates.

CHAPTER XXIII.

IMMORTALITY OF THE SOUL.

So far we have proved in this Second Part of Psychology, that the human mind is a simple, spiritual, substantial principle. These truths, though of interest in themselves, derive their chief importance from their bearing on the question of a future life. It is clearly perceived that if the immateriality of the soul be once established, a scheme of future rewards and punishments is a corollary which cannot be refuted. Consequently, the most violent Psychology and the most desperate Logic are pressed into the service of Materialism. The great poet of the school, Lucretius, openly confessed that the aim of this philosophy is to relieve men from anxiety regarding their condition after death, and the more candid of modern disciples, such as Vogt and Büchner, scarcely conceal their agreement with this view.

IMMORTALITY OF THE SOUL.—*Immortality* is that attribute in virtue of which a being is free from death. By *death* is understood the cessation of life in living things. Such cessation of life might conceivably be brought about by either of two causes,—

annihilation of the living being, or, *corruption* of its vital principle. *Annihilation* means the reduction of the object into absolute nothingness. A creature is, strictly speaking, *annihilated* only when it so ceases to be that no element of it remains. An object is said to be *incorruptible* when it is incapable of perishing either by dissolution into the constituent parts or elements which may compose it, or by destruction of the subject in which it inheres or upon which it depends for its existence.

Corruption from the philosophical point of view may thus in scholastic language be of either of two kinds, *corruptio per se*, essential corruption, or *corruptio per accidens*, accidental corruption.[1] In corruption *per se* there is a dissolution of the being into its component principles, as in the death of a man and the combustion of firewood. A Being was said to suffer corruption *per accidens* when put an end to *indirectly* by the destruction of the subject on which it depends. An *accident* perishes in this way when the subject in which it inheres is broken up or changed in such a manner as to be no longer a fit support for it, as in the case of the disappearance of the shape and colour from a ball of melting snow or butter. According to the opinion most commonly received among the schoolmen, the extinction of the vital activity of brute animals and plants is an instance of *corruptio per accidens*.

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[1] "A Being is *incorruptible* if it does not contain within itself a principle of dissolution; it is *indestructible* if it can resist every external power tending to destroy or annihilate it. If the indestructible and incorruptible Being is endowed with life it is called *immortal*." (Kleutgen, op cit. § 844.) The signification of these terms varies slightly with different writers. Kleutgen points out that annihilation is always possible to God by the mere withdrawal of His conserving act.

Now we hope to prove: (A) that the human soul is both *per accidens* and *per se* incorruptible; (B) that it can be annihilated neither by itself nor by any other creature; (C) that it will live at least for some time after death; (D) that no sufficient reason can be assigned for supposing that God will ever annihilate it. We start then by admitting that, leaving Revelation aside and arguing solely from reason, we do not see any perfectly demonstrative proof of the everlasting existence of all human souls. Almighty God could by an exercise of His absolute power[2] annihilate the human soul as well as any other object which He has created.

But we can prove that God is the only agent by whom its destruction could be brought about. The reader will notice that we now for the first time introduce the idea of God into the chain of our reasoning. The argument accordingly ceases to be purely psychological; nevertheless, it is based solely on rational considerations. For the justification of our assumptions concerning the existence and attributes of God we have to refer to the volume on *Natural Theology*; and as that work is also of a purely rational character, abstracting altogether from Revelation, our doctrine still rests on strictly philosophical grounds. We now proceed to the establishment of our doctrine:

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[2] The phrase *potentia absoluta* denotes the range of the Divine Power abstracting from all self-imposed decrees. Within its sphere is included the production of anything not involving a contradiction, such as would be, *e.g.* a square circle. *Potentia ordinata* signifies the range of God's power as conditioned by His free decrees. Thus, if God has once promised a particular reward on the fulfilment of a certain condition, He cannot henceforward retract.

(A) THE HUMAN SOUL IS AN INCORRUPTIBLE SUBSTANCE.—We have already demonstrated (1) that the soul is a substantial being, (2) that it is simple or indivisible, (3) that it is spiritual or not intrinsically dependent on the body for its action or existence.[3] But a simple substantial being is incapable of corruption *per se*, for it is not composed of distinct parts or principles into which it might be resolved; and a spiritual substance is exempt from corruption *per accidens*, since it does not intrinsically depend on the body for its existence. Therefore the human soul is incapable of corruption in either of these alternative ways. Incorruptibility is thus a consequence of immateriality. If the mind were a function of the brain, or an aspect of nervous processes, then dissolution of the organism would necessarily involve destruction of the soul. The refutation of these hypotheses in our first three chapters has, consequently, removed the chief argument against the possibility of a future life. Having now shown that the soul cannot perish by corruption, we proceed to our next theses:

(B) THE HUMAN SOUL CANNOT BE ANNIHILATED EITHER (1) BY ITSELF OR (2) BY ANY CREATED BEING.—Annihilation is the reduction of something to nothing. But this result cannot be the effect of any *positive* action; for every positive action must terminate in a positive reality. A positive act, other than that of creation, can only *change* the state of the materials upon which it operates. It cannot make them disappear altogether. Any action accordingly, whether of the soul itself or of another creature, could at most effect merely a change or modification in the soul. Annihilation is possible only by the withdrawal of the conserving or created power which has sustained the being in existence. Now, as creation and conservation in existence pertain to God alone, He only can cease to preserve; and, therefore, He alone can annihilate.

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[3] Cf. pp 443 -455.

The argument has been thus concisely stated: "Inasmuch as it is a simple spiritual substance, the soul can come into existence only through the creative act of God; and, therefore, only through annihilation by God can it perish. Annihilation consists in the refusal of any further creative conservation: accordingly, He alone who preserves and sustains a being can let it sink back into nothing. In fact, no created force can subdue Omnipotence exercising creative conservation, so as to reduce into nothingness that which God preserves in existence. Divine creation and conservation consists merely in the effective volition that something *be*. Now, either God wills that the soul exists longer, or He does not will it. If He wills it, then His will can be overcome by no finite power. If He does not will it, then it ceases of itself to exist without any other agency being cause of its cessation. Consequently, the soul can in no way be destroyed by any finite power."[4]

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[4] Gutberlet, op. cit pp. 314, 315.

(C) THE HUMAN SOUL DOES NOT PERISH AT DEATH.—(1) *Proof from the Moral Law and the Sanctity and Justice of God.*—God has inscribed in our rational nature His Moral Law, commanding us to do right and to abstain from wrong; and, as an infinitely wise, just, and holy Legislator, He must have fortified this law with a perfect sanction. But there is not such a perfect sanction in this life. Therefore the soul must exist at least for some time after death. The reality of the Natural or Moral Law, and the necessity of such a sanction, is scientifically established in Ethics.[5] Our own conscience, however, gives us the most intimate and perfect assurance that we are under such a Moral Law. The study of the laws, literatures, religions of the various nations of the world, investigations into the customs and moral ideas of savage tribes, the researches of the science of Philology, all conspire to afford irresistible evidence of the universality of ethical conceptions which reveal the Moral Law. But, without a sufficient sanction, such a law would obviously be incomplete and inadequate: and, therefore, incompatible with the character of a perfect, wise, and just Lawgiver.

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[5] "As God is the one source of all reality and of all power, not only can there be no being which He has not created and does not still preserve, but no action either can take place without His concurrence God must go with His every creature in its every act: otherwise on the creature's part nothing could be done. Now, God cannot be indifferent what manner of act He shall concur unto . . . For God to be thus indifferent what action He should lend His concurrence to, would be to forego all design and purpose of His own as to the use and destiny of creatures which He has made and continually preserves. This God cannot do, for He cannot act aimlessly. . . . He must, then, will the co-operation which He lends, and the concurrent action of the creature to take a certain course regulated and prescribed by Himself: which is our proposition, that God cannot but will to bind His creatures to certain lines of action." (Rickaby, *Moral Philosophy*, p. 121.) Again: "There is no law without a sanction. There is no law, the giver of which can allow it to be broken with impunity. A legislator who dispensed with all sanction, would rightly be taken by young and old not to be in earnest in his command If then God must give a law to man whom He has created, He must attach a sanction to that law." (p 161.) For a detailed exposition of the nature of Obligation and the Eternal Law, cf. cc. vi.—viii.

That a sufficient sanction is not to be found in the present life is a fact of common observation. The goods and ills of this world are often distributed inversely in proportion to desert. Many self-sacrificing virtuous men meet with continuous suffering and trial during the whole course of their lives, whilst many wicked men have enjoyed prosperity up to their very last moments. Now, this cannot be the final outcome of life. We gladly allow that frequently, perhaps as a general rule, even looking solely to this life, virtuous conduct is the most profitable, and honesty is the best policy. It is certain that extreme courses of vice and wickedness generally bring retribution. Still, many noble sacrifices—notably, the highest of all, the surrender of life for duty's sake—meet little or no reward in this life; and unprejudiced thinkers must admit that a certain judicious mixture of unscrupulousness will often secure to the individual a considerable gain in the dividend of the sources of happiness, without involving any proportionate future loss. But an infinitely holy and just God cannot permit this. He cannot allow that it be ultimately better for those who break His law, who violate the precepts of reason, and degrade that nature in which they are like unto Him, than for those who seek to observe His commands and to conform their conduct to the archetype of holiness. Therefore there must be a future existence of the soul, in which the present deficiencies of the practical order shall be set right.

We have here assumed the existence of God, but the affirmation of our moral reason, which cannot be silenced, and which declares in a language intelligible to all that there must be a final readjustment in harmony with the dictates of justice, is itself one of the most forcible proofs of the existence of the Divine Legislator. If there is not such a retributory state, then—there is no use in concealing the fact—the moral life of man, the seemingly grandest and sublimest reality in the universe, is founded on an irrational hallucination, and many of the noblest acts that have ever been achieved, and which all mankind conspire to applaud, are simply unspeakable folly.[6]

(2) *Proof from the desire of perfect happiness.*—A natural and universal desire, in harmony with the dictates of reason, could not have been implanted

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[6] Mr. Henry Sidgwick (*Methods of Ethics*, Bk. IV. c. vi. 1st Edit) rightly contends that "the existence of a Supreme Being who will adequately reward me for obeying this rule of duty, or punish me for violating it," is "a matter of life and death to the Practical (Moral) Reason " His final conclusion is, that "the whole system of our beliefs as to the intrinsic reasonableness of conduct must fall, without a belief in some form or other that the Moral Order which we see imperfectly realized in the actual world is yet actually perfect. If we reject this belief we may, perhaps, still find in the non moral universe an adequate object for the speculative reason capable of being in some sense ultimately understood. But the Cosmos of Duty is reduced to a chaos, and the prolonged effort of the human intellect to frame a perfect ideal of rational conduct is seen to be foredoomed to inevitable failure." (Cf. also Mr Mallock's work, *Is Life worth Living?* c ix.)

in man's nature by a perfectly wise and good God with the intention of its universal, necessary, and final frustration. But unless the life of the human soul be continued after death, such is the case. Therefore the soul cannot perish at death. Our major premiss is too obvious to require proof. It is inconceivable that a God of infinite wisdom and goodness could have set in man's nature a truly rational desire, designing it to be inevitably and universally rendered vain. This implicit tendency towards perfect beatitude, this striving after the possession of an infinite good, is not a blind instinct, but an intelligent yearning. It is a desire rooted in the rational nature of man, in that element of his being, which makes him specifically human. It is a longing universal throughout the race, expanding with mental and moral development, and attaining its grandest and noblest form in those men who conform their lives to the loftiest ideal of virtue. It would, then, have argued both folly and cruelty in the Author of our nature to have created this desire and purposed it for inevitable and universal frustration.[7]

The minor premiss is also easy to establish. Our own internal experience, our personal observation of other men, the history of the human race, all bear witness to the truth that man's yearning after happiness can never be satisfied in the present life. Health, strength, beauty, wealth, intellectual gifts fall to the lot of very few; yet even where they are all combined we know that there may be found, not merely absence of perfect happiness, but even painful discontent and acute misery. Anything capable of satisfying the desire of happiness is, in the present world, beyond the wildest hopes of the vast majority of the human race. Unless, then, we are prepared to predicate both folly and cruelty of God, we must maintain a future existence in which this desire can meet its proper object. There must be a state where this unfulfilled yearning can be satiated.

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[7] For a detailed treatment of the desire of Happiness, cf. *Moral Philosophy*, c. ii.

(3) *Proof from the universal judgment of mankind.* --A third argument for the reality of another life, upon which much stress has been always laid, is the fact that morally speaking in all times and among all nations there has been found a belief in a future life. Now, such a conviction in direct opposition to all sensible appearances must spring from man's rational nature, and must be allowed to be true, unless we are prepared to affirm that man's rational nature leads him inevitably into error. To assert this is virtually to adopt the position of absolute scepticism. Consequently, it is urged, we are bound under the penalty of intellectual suicide to admit the trustworthiness of this universal belief. These various arguments demonstrate the truth that the soul will live at all events for *some* time after death.

(D) THERE IS NO REASON TO SUPPOSE THAT THE SOUL WILL EVER PERISH.—We have now proved that the soul will certainly not perish at death, that it is of its own nature incorruptible, and that it can be destroyed neither by itself nor by any created being; it only remains to be shown that there is no ground for supposing that God will ever annihilate it. The ultimate end and purpose for which the Almighty conserves the soul in existence is His own extrinsic glory, both objective and formal.[8] But this end remains for ever, therefore the act of conservation ought to be everlasting.

The only conceivable grounds which can be suggested for the cessation of God's preserving action are, (*a*) the incapacity of the soul to act when separate from the body, with its consequent inability to apprehend, to praise, or to love God, and (*b*) the unworthiness of the souls of the wicked to exist. As regards (*a*), we have proved that the soul must live at least for a time after death, and be capable of experiencing reward or punishment. It must, therefore, be endowed with intelligence and will, and so be capable of contributing to the formal glory of God. The mode, however, of its action, following the mode of its existence, must be different from that of its present state. (*b*) As for the souls of the wicked. they can continue for all eternity to glorify by their punishment the offended majesty and justice of God.

Absolute certainty of eternal punishment, just as of everlasting reward, is afforded us, not by the light of pure reason, but by the infallible testimony of Holy Writ.[9] However, that there is congruity in such unending punishment is seen when we reflect upon the infinite majesty and goodness of the Person offended, and the infinite claims He possesses over His creatures. The rebellion and ingratitude of a subject against such a Lord, constituting an offence under a certain aspect infinite, is not unfittingly punished by a penalty finite in intensity, but unlimited in duration.

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[8] The *extrinsic* or *external* glory of God is that given to Him by His creatures, *intrinsic* or *internal*, is that afforded by Himself. The former is finite, the latter infinite Both kinds may be either *objective* or *formal*. The *objective* glory of God is that conferred by the mere existence of His perfections, whether manifested in Himself or in His works. The latter is compared to that reflected on the painter by his pictures. The *formal* glory of God consists in the recognition and acknowledgment of the Divine excellencies, whether by Himself or by created intelligences.

OBJECTIONS ADVANCED AGAINST THE DOCTRINE OF A FUTURE LIFE.—The leading difficulties urged against Immortality are those based on the intimate dependence of the soul upon the body. As we have already solved these, we refer our readers back to our previous answers. We will here briefly examine some of the remaining objections.

1. Although the soul may be devoid of *extensive* quantity, yet it possesses *intensive* quantity, viz., a plurality of forces or faculties of different grades, but these may gradually diminish in activity, and so the soul would ultimately perish. Such in substance is an objection elaborated by Kant. We may answer, that even were the possibility of such a natural decay of the soul allowed, it would in most cases have to take place during the course of a future life, and so our primary contention for the fact of such an existence stands. The soul, however, does not possess an intensive quantity of the kind implied. It is not formed of

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[9] The student is sometimes disappointed on learning that we cannot demonstrate from *reason alone* the Immortality of the soul in the strict sense of the term. When, however, he remembers that we can prove the existence of a future life for at least some time, his anxiety and regret ought to disappear. The vital philosophical problem is: Does the Human Mind perish with the body? Few thinkers who once admit that it does not so perish find much difficulty in the doctrine of complete Immortality.

superimposed layers, nor of really distinct forces. It is merely one indivisible being, capable of energizing and being effected in various ways; consequently, it is not liable to dissolution in the manner imagined. Its faculties are not superadded agents, but essential properties of its nature. Since, therefore, its nature is incorruptible, its intellect and will cannot be destroyed. Moreover, it is absurd to suppose that God, even were it possible, would continue the soul in being devoid of all action.

2. A disembodied spirit, it is affirmed, cannot be pictured by the imagination. "A spirit without a body," Büchner assures us, "is as unimaginable as electricity or magnetism without metallic or other substances." Science also refutes our doctrine. "Physiology," says Vogt, "decides definitely and categorically against individual immortality, as against any special existence of the soul." Again Büchner: "Experience and daily observation teaches us that the spirit perishes with its material substratum." To remarks of this sort we may reply that (*a*) as far as imagination goes we cannot picture the soul *with* the body. Neither can we imagine God, nor the ultimate atoms of matter. (*b*) The comparison of the soul to bodiless electricity is a complete misrepresentation of our knowledge of mind. Electricity and magnetism, as we have already pointed out, are presented to us only through sensible *movements*, whilst we have an immediate consciousness of the simple nature of mental energy. (*c*) Vogt's assertion is simply as false as his other dictum, borrowed from Cabanis, that "thought is a secretion of the brain." Physiology can say nothing more than that the action of the soul during this life is affected by the condition of the brain. (*d*) The final statement cited from Büchner is equally untrue. We most certainly cannot observe or experience the death of the soul; and we trust our arugments have shown that we may infer the contrary.

3. "The soul is born with the body, it grows and decays with the body, therefore it perishes with the body."[10] Modern science has added very little to the

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[10] Lucretius, *De Rerum Natura*, Lib. III. vv. 446, seq.

argument stated with so much power by the Latin poet. Now, we have repeatedly pointed out that in the Scholastic system the human soul is *extrinsically* dependent on the body which it informs. Such a condition would completely account for all the correspondence observed, whilst *intrinsic* or essential independence remains. The soul, however, as will be proved in a later chapter, is *created*, not derived, like the body, from the parents. It does not grow in the sense of being *quantitatively* increased, but, conditioned by the efficiency of the brain and sensory organs, it gradually unfolds its capabilities. It does not really decay with bodily disease, although since its sensuous operations are immediately dependent on the instrumentality of the organism, it must naturally be affected by the health of the latter. The argument can also be inverted. In many instances the mind is most powerful and active in the decrepit frame of the old, and at times, in spite of dreadful havoc from bodily disease, intelligence may survive in brilliant force to the last.[11] Even Physiological science, taken without any reference to Psychology, is very far from pronouncing in favour of Materialism, whilst the science of mind, as we have shown, renders such a verdict impossible.

4. The activity of the intellect, it is objected, is conditioned by that of imagination and the external senses—organic faculties. Therefore, since the latter are extinguished at death, so must be the former. That

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[11] "That the subject of the states of consciousness is a real being, standing in certain relations to the material beings which compose the substance of the brain, is a conclusion warranted by all the facts. That the modes of its activity are correlated under law with the activities of the brain-substance is a statement which Physiological Psychology confirms: one upon which, indeed, it is largely based. . . . *All physical science, however, is based upon the assumption that real beings may have an existence such as is sometimes called 'independent,' and yet be correlated to each other under known or discoverable laws*. If this assumption could not be made and verified, all the modern atomic theory would stand for nothing but a vain show of abstractions. Upon what grounds of reason or courtesy—we may inquire at this point—does Materialism decline to admit the validity of similar assumptions as demanded by mental phenomena?" (Ladd, *Physiological Psychology*, p. 607.)

intellectual activity is extrinsically conditioned by the sensuous powers whilst the soul informs the body, is allowed; that the intellect is so conditioned when the soul is separate, is denied. And we have proved that the soul must be capable of experiencing reward and punishment after death. As regards the inferior faculties themselves, it is held that during the state of separation they are only retained radically or potentially by the soul, in such fashion that they cannot be awakened into life until reunion with the body.

5. Against the argument from the desire of happiness, it is urged: (*a*) That many natural desires are vain, *e.g.*, man's longing for health, wealth, &c., the love of life in the brute, and the like. (*b*) That this desire will at all events be vain in lost souls. Premising that our chief argument is that from the moral law, it may be answered: (*a*) That the desire of happiness is distinct in kind from the impulses with which it is here compared. It is *universal* and *necessary*. It is the great rational tendency which *manifests the end of man as a human being*. The other impulses that can be cited, however, are all particular appetites towards some special form of happiness. No one of them is necessary, or an inevitable outcome of man's nature. Even the instinct of self-preservation is but a special form of the desire for happiness, and sometimes disappears, when the mind is convinced that happiness is to be gained, or misery avoided, by death. As regards the instincts of the lower races of animals, in the first place, they do in great part attain their end, and secondly they cannot properly be compared with the rational desire of man. The brute has not an intelligent apprehension of what is meant by a continued existence. Consequently, though it is impelled to avoid pain or destruction, it cannot be said to desire immortality. Brute existence may attain its end though all the lower animals die, whilst if this all comprehensive desire in man is doomed to universal disappointment, it must be held that in the highest order of being upon the earth there is an enormous failure, anything like which is not to be discovered elsewhere in the universe. (*b*) The desire is undoubtedly frustrated in the lost.

But this is done freely by themselves, and the very essence of their punishment consists in this frustration. Such a fact, however, does not militate against our argument. All men are designed by God for happiness, but conditionally on their own conduct; its loss then through their own fault argues no want of wisdom or goodness in Him.

6. The argument from universal belief is attacked on the ground that some peoples, and many individuals, both philosophers and non-philosophers, do not judge there is any future life. It may be observed in answer, that whenever the proof from universal consent is invoked, it only presupposes a *moral* universality. As regards the nations or tribes who have been asserted to believe in no future life, advancing knowledge does not confirm such a statement. The greatest care is required in interrogating savages regarding their religious opinions. Inaccuracy in this respect has often caused the ascription of atheism to tribes later on proved to possess elaborate systems of religions and hierarchies of gods. Future annihilation, asserted to be a cardinal doctrine of Buddhism, is by the vast majority of the disciples of that sect understood to be not a return to absolute nothing, but an ecstatic state of peaceful contemplation.

7. Against the congruity of the dogma of eternal punishment with the Justice of God, it is often asserted that there is no proportion between an *eternal* punishment and a *transitory* offence. Now, in the first place, it should be remembered that we do not hold the doctrine of everlasting punishment to be demonstrable on merely philosophical grounds. It rests on Revelation, and so requires the whole scheme of Redemption, and the work done by God for man to be accepted before a satisfactory justification of the doctrine can be adequately made out. Adhering, however, to strictly rational considerations, we may reply: That there is no proportion in *duration* between the offence and the punishment, any more than between ten years' imprisonment and an attempt on a sovereign's life—granted; that there is no proportion in harmony and fitness—

denied. Deliberate rebellion against infinite dignity, goodness, and holiness, by a being bound absolutely to obedience and loyalty in gratitude for everything which he possesses, is a crime suitably atoned for only by such a penalty.

8. A word here, in reply to certain scholastic difficulties not, however, commanding much sympathy at the present day. (*a*) "The soul," it is said, "is the *form* of the body; but a *form* cannot be separated from the subject which it actuates." The solution lies in the fact that the human soul is not a form educed from the body and intrinsically dependent on the latter in all its operations, like the vital force in brutes and plants. It is a spiritual form created by God, infused into the body, and only extrinsically dependent on the latter. (*b*) "The soul is created to inform the body; hence the reason for its existence disappears with the destruction of the body." The answer is, that, indeed, an immediate but secondary end of the soul's existence is to animate the body; the primary end, however, is to give glory to God by its intelligence and will. (*c*) "The soul being the form of the body, its union with the latter is *natural*, its separation would therefore be *unnatural*, and so could not endure. We reply that the separation would not be *unnatural* in the sense of being *impossible*, but we readily admit this state to be *non-natural* in the sense of not being in complete harmony with the nature of the soul; hence the propriety of the resurrection of the body.

Readings.—St. Thomas, *Sum.* i. q. 75, a. 6; Kleutgen, §§ 843—855; Dr. Martineau, *A Study of Religion*, Bk. IV.; Dr Mivart, *On Truth*, pp 286, 287, 487—491; Schanz, *A Christian Apology* (Eng. Trans.), vol i. cc. iii and xii.; G. Fell, S.J., *Die Unsterblichkeit der menschlichen Seele* (Freiburg, 1892); J. Knabenbauer, S.J., *Das Zeugnisz des Menschengeschlechtes fur die Unsterblichkeit der Seele* (1888); *The Unseen Universe*, c. vii contains some curious speculations on the subject of future existence from the stand-point of Physics.

CHAPTER XXIV.

INDIVIDUALITY AND UNITY OF THE SOUL. VITALISM, ANIMISM, ORGANICISM.

INDIVIDUALITY OF THE HUMAN SOUL.—An obscure passage in Aristotle describing the nature of the *Intellectus Agens* afforded the occasion for a curious philosophical heresy widely accepted amongst the Arabian philosophers, who flourished from the eleventh to the fifteenth century.[1] Aristotle speaks of this faculty as being "separate" from the body. The explanation of the paragraph offered by St. Thomas is, that the *Intellectus separatus* is held by Aristotle to pertain only to the spiritual soul, and so, unlike the sensuous powers, is understood to be intrinsically independent of the organism. Averroes interpreted the epithet "separate" literally, and assumed the existence of one common or universal *Active Intellect* superior to all men, which in some mysterious way operates in the mind of each, and illuminates or excites it to intelligence. Strange and fantastic as this doctrine appears, it has a close affinity to recent forms of Pantheism.[2]

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[1] For a historical account of the dispute, cf. Stöckl's *History of Philosophy* (Trans.), pp. 121, 122.

[2] Spinoza taught that our minds are only *modes* of one infinite mind, which is itself but one of an infinite number of *attributes* that

Both ancient and modern views are alike false. Each human being has complete individual existence; his entire soul is an individual substance separate and distinct from all other minds. The proof lies in the irresistible testimony of consciousness to the individuality of the Ego. I have what is to me the highest conceivable evidence of my own intellectual individuality; and my neighbours assure me they are in a similar condition. The thoughts of each man are most intimately his own, even when he is said to have borrowed or stolen them from another.

UNITY OF THE SOUL IN MAN.—Plato allotted to the human body three really distinct souls,—the *νοῦς*, in the head, the *θυμός*, within the breast, and the *ἐπιθυμία*, in the abdomen. Some modern authors teach that there is in man distinct from the rational sentient soul a vital principle, the source of vegetative life. This is the theory of *Vitalism*. Others make the rational soul numerically different from the common subject of sentient and vegetative activities.

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go to constitute the one, infinite, all-embracing *Substance*. Hegel held that all human consciousnesses are but transient *moments* or *stages* of the Absolute Spirit. According to Cousin, we know all things in the *Universal Reason*. Even the *Vision en Dieu* of Père Malebranche, and the Hyperphysical Idealism of Bishop Berkeley, bear some relationship to the Arabian conception In this last view, what seem to be our intellectual operations are really the result of the working of the one common eternal Active Intellect In the theory of the French Abbé, our mental acts are really our own, though their immediate objects are ideas in the one, all-embracing Divine Mind. Berkeley stands opposed to both in denying the extra-mental existence of material objects; he also looks on God as the cause, and apparently the *external* cause of *all* our cognitive states, sensations, as well as intellectual ideas.

In opposition to these various hypotheses the Peripatetic doctrine, sometimes called *Animism*, holds that *in man there is but one actuating principle, the rational soul*, which is, however, capable of exerting the inferior modes of energy exhibited in sensuous and vegetative life. In this view the plant possesses merely a "vegetative soul," the brute a "sentient soul," containing virtually, however, the faculties of the vegetative principle. It is hardly necessary to remind the reader here that the proof of a spiritual principle in man is independent of all theories regarding the nature of vegetative "souls."

That *the rational soul in man is at the same time the subject of his sensuous life* is proved by various considerations. (1) We have the testimony of consciousness to the most perfect identity between the mind which thinks and the mind which feels. Introspection assures us that it is the same being who understands or reasons, and who is subject of sensations. (2) I can compare intellectual operations with sensitive states, and affirm the former to be more painful, more pleasant, more exhilarating, more depressing, more enduring, or more transitory than the latter. But this can only be effected by the two compared states being apprehended by one and the same indivisible agent. However, inasmuch as these phenomena are mental states, whose reality consists in their being perceived—whose *esse* is *percipi*—they can only be so apprehended by being modifications of one and the same principle. (3) The intimate interdependence of thought and sensation is inexplicable if they are activities of diverse subjects. In particular, no reason can be assigned why it is of objects apprehended through sense that the first intellectual concepts are elaborated by the understanding.

We have next to demonstrate that *the principle of vegetative life in man is identical with this rational sentient soul.* This doctrine involves two theses: (A) That there is in man an active principle, which is the root of the vegetative functions: (B) That this active principle is not really different from the rational soul. We will begin with the former:

(A) *The vegetative principle in man, and in fact in all living organisms, is a special force or energy superior to the chemical and mechanical properties of matter.* This proposition is established by a careful examination of the characteristic differences which separate the animate from the inanimate world. The following are amongst the chief:

(I) *Structure.*—All living bodies differ from brute matter by being organized—that is, they are composed of diverse parts adapted to diverse functions. Of course as we descend the animal scale inferior grades of life exhibit less differentiation of organ and function. Still, the very simplest organisms fundamentally differ from molecules of inorganic matter. Even the single cell must be so formed as to be capable of executing a variety of functions. Inorganic bodies, on the other hand, possess no determinate internal structure. Even crystals are mere aggregates of matter enclosed within regular superficies. They are only an assemblage of juxtaposed parts all precisely similar in shape. Amorphous matter is, as the word implies, a shapeless mass, neither externally nor internally governed by any definite principles of construction.

(2) *Chemical constitution.* — Living beings are characterized (*a*) by an enormous complexity in their constitution,[3] and (*b*) by the instability of the materials composing them. Inanimate matter, on the contrary, presents itself in the form of comparatively simple and stable compounds.

(3) *Origin and Reproduction.*—"*Omne vivum a vivo:*" The whole weight of scientific authority in recent times adheres to Harvey's dictum that life proceeds only from life. Formerly, owing to the imperfect means of experiment, it was generally supposed that spontaneous or equivocal generation was a matter of every-day occurrence. Improvements, however, in the microscope, and advance in the science of Chemistry have completely discredited

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[3] Professor Reinke and Dr. Rodewald published in 1881 the results of a careful analysis, which extended over several years, of the protoplasm of a *simple* organism, *Æthalium Septicum* (flowers of tan). It was found to contain 75 per cent of water (H_2O), and in addition, Terpene ($C_{10}H_{16}$), Propionic acid ($C_3H_6O_2$), Butyric acid ($C_4H_8O_2$), Capronic acid ($C_6H_{12}O_2$), Oleic acid ($C_3H_{34}O_2$), Stearic acid ($C_{18}H_{36}O_2$), Palmitic acid ($C_{16}H_{32}O_2$), Glycerine ($C_3H_8O_3$), Cholesterin ($C_{26}H_{44}O$), Lecithin ($C_{42}H_{84}NPO$); also Peptone, Asparagine, Sarkine, Xanthine, Guanine, Glycogen, Formic acid, Calcium acetate, common salt, Phosphate of calcium, a species of Resin, combinations of Lime with several fat acids, and other combinations of Calcium, and Magnesium. Besides these, by a further process, Vitellin, Myosin, Pepsin, Plastin, and Nuclein (Cf. *Der belebte und der unbelebte Stoff nach den neuesten Forchungs-Ergebnissen*, by L. Dressel, S.J., pp. 63—68. Freiburg) The reader will find in this work an admirable treatise on the problem of life.

such a view. We now find even materialistic scientists, like Professors Tyndall and Huxley, admitting that living beings are produced only by living beings.[4] The property of life comes only from a living agent, and such agents continue their race by the reproduction of other beings specifically like unto themselves. In lifeless matter nothing of this sort takes place, but new bodies may be formed by the accidental or artificial combination of almost any kind of stuff.

(4) *Growth, Conservation, and Decay.*—The living being from his conception to his death passes through a fixed cycle of changes, comprising his life history. Starting from a microscopic germ, the animate organism builds itself up after a certain type. Its growth is effected by a process of intussusception—that is, by the introduction of nutritive substance between the existing layers of its body. Metabolism, or a state of waste and repair, is ever going on, and according as one or the other is the more active, we have increase or degeneration. At

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[4] "I affirm that no shred of trustworthy experimental testimony exists to prove that life in our day has ever appeared independently of antecedent life." (Professor Tyndall, *Nineteenth Century*, 1878, p. 507.) Dr Huxley declares that the doctrine of biogenesis, or life only from life, is "victorious along the whole line at the present day" (*Critiques and Addresses*, p. 239.) Elsewhere he asserts that "the present state of knowledge furnishes us with no link between the living and the non-living." (Art. "Biology," *Encycl. Brit* 9th Edit.) Professor Virchow describes the doctrine of abiogenesis as "utterly discredited" (*The Freedom of Science in the Modern State.*) Balfour Stewart and Tait state that "all really scientific experience tells us that life can be produced from a living being only." (*The Unseen Universe*, p 220.) Tyndall, in his *Floating Matter in the Air*, p. 84, points out very clearly the fallacy involved in every argument for abiogenesis hitherto advanced, Professor Huxley gives a brief history of the question in his *Critiques and Addresses*. Cf. also Janet, *The Materialism of the Present Day*, c vi.

maturity the two antagonistic forces for awhile keep the animal in a condition of equilibrium; this state is then succeeded by decay and death. This cycle has absolutely no counterpart in lifeless matter. The conservation of the latter is effected by a state of changeless repose. If increased, it is by the external addition of particles of matter. It has no term to its existence. It possesses no sort of real unity,—no part having more than an accidental influence on any other. It is a mere aggregate of molecules, the well-being or ill-being of any of which affects not the rest.

These various features mark off by an impassable barrier the living organism from dead matter: and the set of phenomena mentioned in the two last arguments form against *Organicism* a cogent proof of the existence in living beings of a special dominating principle or energy superior to the properties and forces of inanimate substances. There is more in living beings than can be accounted for by organization alone. The several processes of evolution, conservation, and reproduction constitute a group of operations completely transcending the chemical and mechanical powers of matter. The innate tendency to build itself up according to a specific type, to restore injured or diseased parts, to conserve itself against the agencies perpetually working for its dissolution, and to reproduce its kind, manifest an internal principle which dominates and governs the entire existence of the being. On the strength of the axiom that every effect must have an adequate cause, we claim a special ground for vital phenomena in those material substances which possess life. It is true, of course, that life is subject to the conditions imposed on its existence by the chemical and mechanical properties of matter, but this is quite a different thing from saying that life is only the *result* of these properties. Mere aggregation or combination of chemical elements could never be the sufficient reason for the evolution of a plant or animal according to its specific type. Reproduction and uniformity within the same species, and the persistent differences which keep separate species apart, could never proceed from such a cause. We are justified, then, in assuming a new internal energy, a directing force which determines and governs the stream of activities described as the phenomena of life. This force is what is meant by the so-called "*vegetative soul*" or "*vital principle:*" and all the arguments proving its presence in the lower animals *a fortiori* demonstrate its existence in man.

We can now establish our second proposition: (B) *In man this vital principle is identical with the rational sentient soul.* The intimate union and mutual interdependence subsisting between the sensuous and vegetative activities cannot be accounted for on the supposition that two distinct agents or principles are at work. Organic changes and sensations arise simultaneously, and the extinction of vegetative life puts an end to consciousness. The vital principle is the force which governs the evolution and development of the organs of sensibility from the primordial germ cell; and pleasurable or painful excitations of these organs react on the vigour of the vegetative activities. Fear, hope, joy, anger, may instantaneously and powerfully affect the action of the heart, stomach, liver, lungs, or the state of the nervous system generally; whilst conversely the atmosphere, narcotics, the action of the stomach, of the liver, circulation, and indeed nearly all physiological functions may modify the colour of our mental life.

In a word, the arguments put forward to reduce the rational sentient soul to the condition of an aspect or function of the organism contain this much truth, that the ultimate root of physical life is identical with the subject of intelligence, and that the two classes of activities consequently condition each other. Finally, if the rational soul in man were a new entity superadded to the living being already animated by a sentient or vegetative soul, man would not be a single individual. He would be no longer essentially one, but two beings.

The facts concerning the origin of life, to which reference has been made in the present chapter, furnish another decisive argument against atheistic materialism. There is an impassable chasm between living and inanimate substances; there is another similar division between sensation and all purely physical phenomena; and lastly, there is a still greater gulf between the spiritual activities of self-consciousness and free-volition on the one side, and all merely sensuous states on the other. The attitude of Professors Huxley and Tyndall on the problem of life, is interesting as an instance of the consistency and impartiality of some minds when they approach certain questions. These writers fully admit

—they cannot help admitting—that there is not a shred of evidence to show that life can ever arise except from a living being. Yet they *assume* that it arose from dead matter in the distant past. All science, these writers are very fond of telling us, rests on *experience*. But all experience proves that life never comes into being unless from antecedent life; therefore, conclude these rigorous logicians, life once sprang into existence from non-living matter. The alternative, of course, would be the admission of a *Living God*.

The most common scholastic definition of life was, *activitas qua ens seipsum movet*—the activity by which a being moves itself. The word *move*, however, was understood in a wide sense as equivalent to all forms of change or alteration, including the energies of sentiency and intellectual cognition as well as local motion. The feature insisted on as essential is the *immanent* character of the operations. That is, proceeding from an internal principle, the action does not pass into a foreign subject, but perfects the agent. All effects of non-living agents are, on the contrary, *transitive*. Notwithstanding the multitude of attempts made by successive philosophers and biologists, the definition of the schoolmen has not been as yet much improved upon.[6]

Against our teaching, defenders of Vitalism, who suppose in man a vegetative principle distinct from the rational soul, commonly object that the intellect is unconscious of the processes of growth, assimilation, &c.

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[6] Bichat's definition is well known: "Life is the sum of the functions which resist death." This is not a very great advance it death can only be described as the cessation of *life*. "Life is the sum of the phenomena peculiar to organized beings." (Béclard.) "Life is a centre of intussusceptive assimilative force capable of reproduction by spontaneous fission." (Owen.) "Life is the two-fold internal movement of composition and decomposition at once general and continuous" (De Blainville, Comte, and Robin.) These definitions, starting from the physiological point of view, aim merely at summing up the phenomena of vegetative life, and exclude intellectual activity Mr Spencer, with his wonted lucidity, defines life as "the continuous adjustment of internal relations to external relations."

And this, it is implied, could not occur if the latter activities pertained to the same subject as the former. The reply of those who reject a plurality of souls in man is that no proof can be assigned showing why the soul ought to be conscious of all the operations or influences which it exerts. Moreover, we know from experience that many actions at first laboriously acquired ultimately grow to be performed with little or no consciousness of them.

The solution to a difficulty often raised in various forms against the doctrine of the last chapter, as well as against that of the present or of the next, may also be indicated here. It is argued that a *corruptible* principle must be really distinct from an *incorruptible* one, but sentient and vegetative souls are admittedly corruptible, therefore the rational spirit in man cannot be identical with the root of inferior life; or if it is, then it must be mortal. To this we can answer: it is quite true that a soul or vital principle capable of merely sentient or vegetative activity perishes on the destruction of the subject which it informs, and is accordingly corruptible, but this is not the case with the root of the inferior species of life in man. Sentiency and vegetation are not in him activities of a merely sentient subject. They are, on the contrary, phenomena of a rational soul endowed with certain supra-sensuous functions, but also capable of exerting lower forms of energy. There can be no reason why a superior principle cannot virtually and superabundantly contain such inferior faculties. God, it is proved in Natural Theology, possesses in an eminent degree, or rather after a manner transcending all degrees, the power of immediately executing operations sometimes performed by His creatures. Scholastic philosophers, accordingly, have always taught that the virtue of exerting organic functions is inherent in the human soul, but that these activities are necessarily suspended whilst the soul is separate from the body. In the case of man, therefore, the root of sentiency and vegetative life is not a corruptible principle.

It is sometimes urged, that the existence of a struggle between the rational and sensitive powers shows that both proceed from diverse roots. The true inference, however, is the very opposite. The so-called "struggle" is, of course, not a combat between independent beings within a supposed arena of the mind. It is one indivisible mind which thinks, feels, desires, and governs the vegetative processes of the living being. But precisely because the subject of these several activities is the same they mutually impede each other. Violent excitement of any one kind naturally diminishes the energy available for another.

Readings.—St. Thomas, *Sum.* 1. q. 76. a. 3, 4; Dressel, op. cit Pt. II. c. 3; Gutberlet, op. cit. pp. 259—271.

CHAPTER XXV.

THE UNION OF SOUL AND BODY.

VARIOUS theories have been advanced regarding the nature of the union between soul and body. The materialist hypothesis we have examined in chapter xxii. Of spiritualist theories the most celebrated are: (1) that of Plato, (2) Occasionalism, (3) Pre-established harmony, (4) the doctrine of Matter and Form. The first three are all forms of exaggerated Dualism; the last alone recognizes the essential unity of man.

ULTRA-DUALISTIC THEORIES.—(1) According to Plato, who historically comes first, the rational soul is a pure spirit incarcerated in a body for some crime committed during a former life. Its relation to the organism is analogous to that of the rider to his horse, or of the pilot to his ship. Since it is not naturally ordained to inform the body, the soul receives nothing but hindrance from its partner. This fanciful hypothesis, it is needless to say, does not receive much favour at the present day. There is no real evidence for such a pre-natal existence; and the doctrine would make man not one, but two beings.

(2) Geulincx and Père Malebranche explain the union of soul and body by the theory of *Occasionalism* or *Divine Assistance*. Soul and body are conceived in this system as two opposed and distinct beings between whom no real interaction can take place. It is God alone who effects changes in either. On the *occasion* of a modification of the soul He produces an appropriate movement in the body; and *vice versa*. All our sensations, thoughts, and volitions are immediate results not of the impressions of material objects upon us, but of God Himself; and similarly our actions are due not to our own, but to the Divine Will. The doctrine of Occasionalism, however, is not confined by Malebranche to the interaction of soul and body. No created things have, in his view, any real efficiency. God is the *only* operative cause.

The establishment of the genuine activity of secondary causes in general, we leave to the volume on Metaphysics;[1] here it is enough to point out the error of Occasionalism within the sphere of Psychology. This theory renders purposeless the wonderfully ingenious machinery of the various sense-organs. It is in direct conflict with the testimony of consciousness to personal causality in the exercise of volition and self-control. It is refuted by an irresistible conviction, based on the experience of our whole life, that our sensations are really excited by the impressions of external objects, and that our volitions do really cause our physical movements. Finally, Occasionalism involves the gratuitous assumption of a continuous miracle, removes responsibility from man, and makes God the author of sin.

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[1] Cf. pp. 308—313.

(3) The theory of *Pre-established Harmony*, invented by Leibnitz, substitutes for the never-ceasing miracles of Occasionalism a single miraculous act at the beginning. Soul and body do not really influence one another, but both proceed like two clocks started together in a divinely pre-arranged correspondence. The objections to this theory are substantially the same as to the last. In both, the union between mind and body is accidental, not essential; and we have in man really two beings instead of one.[2]

SCHOLASTIC DOCTRINE.—The true doctrine is the Peripatetic theory. This explanation was formulated by Aristotle, and later on adopted by St. Thomas and all the leading Scholastic philosophers. The soul is described by these writers as the *substantial form* of the body. The living being is conceived as the resultant of two factors,—the one active and determining, the other passive and determinable. The first is called the *Form*, the second the *Matter* of the being. The general problem of the nature and relations of *Matter* and *Form*, which runs through the entire Scholastic system of Philosophy, belongs especially to the science of Cosmology. Here we will merely utter a brief word on the question, and we refer the English reader desirous of obtaining a thorough grasp of the subject to Father Harper's *Metaphysics of the School*, especially Book V. chapters ii. iii.

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[2] Cf. pp. 262—265, above. Another theory, that of "Physical Influx" constitutes the union of soul and body in their mutual interaction. This account however, is either merely a statement of the fact that they *do influence* each other, or an explanation which would dissolve the substantial union into an accidental relation between two juxtaposed beings. Cudworth invoked the assistance of a *Plastic Medium*—an entity intermediate between matter and spirit—to solve the problem. The objections to this view are overwhelming. There is not a particle of evidence of the existence of such a medium; it is an inconceivable and self-contradictory notion; and finally, it would merely double the difficulties.

Aristotle resolves all kinds of causes into four great classes: the *final cause*, the *efficient cause*, the *formal cause*, and the *material cause*. The last two are intrinsic, the first two extrinsic to the effect. The *final cause* is the end in view—the good for the sake of which a thing is done. An *efficient cause* is a being by the real activity of which another being is brought into existence. The *material cause* is the reality out of which the complete bodily substance is made. The *formal cause* is that reality in the complete bodily substance which gives to it its proper being or essential nature. These four species of causes are easily distinguished in the production of a statue. The material principle is the iron, bronze, or stone—the stuff out of which the particular statue is wrought. The formal principle is the determining figure or shape, by which the statue is made to represent Napoleon or Nelson.[3]

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[3] It should be borne in mind that *materia prima* never exists as such, there is no matter which is in the Scholastic sense actually devoid of all form The bronze, for instance, which stands in the relation of matter to the Nelsonic form, is conceived as distinguished from iron or carbon by its own specific form

The efficient cause is the sculptor, his hammer, chisel, &c. The final cause is the satisfaction, fame, or money which the artist has in view in the production of the work.

Now, all things are created by God for His own greater glory. We have here the first efficient cause, and the ultimate final cause of every creature. Furthermore, in the Scholastic system all material beings are viewed as the product of two concreated constituent factors—the one passive and recipient, the other active and determining. The first is styled the matter, the second the form, and both are called *substantial* principles inasmuch as by their coalescence they constitute one complete substantial being.[4] The form is the factor which determines the *essential nature* of each being. Thence proceed all its specific activities. As in Aristotle's view the *prima materia*, the ultimate substratum, is alike in all substances, their specific differences are due to dissimilarities of kind in the actuating co-efficient. The distinctive properties of iron, carbon, and gold have thus their root in the different formal elements entering into the constitution of each. In living beings the vital principle is the substantial form. It is this determining factor which defines the essential nature of the plant or animal; and from it proceed the activities by which the being is separated from other species of things, whether animate or inanimate. A *substantial form* is accordingly defined as *a determining principle which by its union with the subject that it actuates constitutes a complete substance of a determinate species.* It should, however, be clearly understood that the proposition, "The soul is the form of the body," stands on a quite different footing from the general doctrine of "Matter and Form" as applied to inanimate substances.[5]

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[4] The *substantial* form differs from the *accidental* form in the fact that the one is an essential constituent, the other a mere accidental mode or determination which conceivably might be removed without affecting the nature of the substance, *e g*, heat, colour, &c.

Now, we have already proved that there must be in each living being, and therefore *a fortiori* in man, a vegetative soul, or vital principle, to which is due the natural unity of activity comprising the phenomena of his life. And we have also shown that this principle must be different from, and superior to, the properties or forces of inanimate matter. But such a principle must be the substantial form of the living human being. For, since *actio sequitur esse*—since every *action* of an agent flows from the *being* of that agent—the principle which is the root of the natural activity of a substance must be the determinant of its being and nature. Consequently, as the vegetative soul is the source of all vital activities, it must be the determining or actuating principle of the living being; but this is equivalent to saying that it is the substantial form of the living being.

Or we may approach the question otherwise thus: *The vital principle is really different in nature* from its material co-efficient. Furthermore, this principle is not a mere accidental determination capable of removal whilst the substance remains complete. On its extinction the nature of the creature is destroyed, and the living being is changed into a lifeless aggregate of matter—a substance or substances of completely different species. The vegetative soul is thus a substantial principle upon which the very being of the substance depends. In other words, by its union with its material co-efficient the vegetative soul constitutes the active living being. That is, the vegetative soul, or vital principle, is the substantial form of the living body.

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[5] Thus the author of the ablest counter theory as regards the constitution of material substances, that of Dynamism—was Father Boscovich, who nevertheless fully acquiesced in the doctrine *that the human soul is the form of the body.*

It is on the permanence of the substantial form that the identity of the individual depends. The material constituents of the living body are nearly all changed, as we have before stated, in the course of a few years, yet we affirm that the man of sixty is identical with the boy of six: the soul has persisted unchanged. It is this same simple informing principle which reduces the different parts and organs of the body to the unity of a single being. Neither a bale of cotton nor a bucket of water forms *one being;* each is but a mere aggregate of parts. Even a watch or a steam-ship—although the parts are unified by its end or purpose—wants the unity of being which is exhibited in man, in the brute, and in the plant. Though working towards a common end, all the parts of the machine retain their chemical and physical properties in complete vigour and mutual independence. In the living being, on the other hand, there is no such isolation. The various parts are compenetrated by the informing principle, their individuality is merged, their several tendencies unified, and their natural properties transformed and subordinated by this dominating force.[6]

If the vegetative soul in living beings is the form of the body, it follows at once that in man, since the vegetative and rational soul are identical, the latter must be the substantial form of the human body. The rational soul must also be the *only* substantial form in man. For man is one, complete, individual being, specifically distinct from all other beings. Were the human body, however, actuated by more than one substantial form, man would be, not one, but an aggregate of individuals, since each substantial form would constitute with its subject a complete substantial being of determinate species.

Moreover, the union of soul and body results in a single *nature*. The nature of a being is simply its essence viewed as the source of its actions. But in the living animal the various processes of growth, sleep, motion, and sensation, are not operations of the soul or body alone, but of the being as a whole. They are activities of one nature. An individual nature conceived as a complete being subsisting in itself, and not communicated to or coalescing with another, is called by the Schoolmen a *suppositum* or *hypostasis*. The *suppositum* is, therefore, the entire and ultimate source of all operations. Hence the axiom: *Actiones sunt suppositorum.* When the *suppositum* is endowed with intelligence it is termed a *person*. A *Person* may accordingly be defined in scholastic language as *a suppositum of a rational nature*, or *an individual and incommunicable substance of a rational nature.*[7] The *human person* is thus neither the body nor the soul, but the rational being arising out of the substantial union of both principles.

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[6] Both Matter and Form are sometimes called *substances* by the Schoolmen, inasmuch as their coalescence results in a *substantial being* Except the human soul, however, no *forma* or *materia prima* can exist *per se* apart. The epithet *incomplete* is occasionally used of inferior forms to express this circumstance; this adjective more properly, however, connotes the fact that the union of these factors gives rise to *one complete* composite substance. Even the human soul, though capable of subsisting in itself apart from the body, is styled an *incomplete substance*, since it possesses a natural aptitude to form with the body a single *complete* substance. An *integral part* of one complete being, *e g*. a man's hand, is also spoken of as an *incomplete substance* The terms *constituent principle*, or *substantial principle*, seem less likely to mislead modern minds than the word *substance* if employed to designate the essential co-efficients of composite substances.

The reasoning in the present chapter may have been grasped with some difficulty by the reader unacquainted with the Scholastic system. But the subject of Matter and Form, and many of the other notions involved, are properly investigated in Ontology or Cosmology, and we have to be very brief in dealing with them here. Fortunately, however, the problem of the exact nature of the relations between Soul and Body is of very secondary importance from a philosophical point of view, as compared with the vital questions: Is there an Immaterial Soul at all? and, Is there reason for supposing such a Soul will have a future life?

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[7] Cf. also above, p. 343. For a complete treatment of the notions *persona*, *suppositum*, &c , see Rickaby, *Metaphysics*, Bk. II. c. 2. The terms *substance*, *essence*, *nature*, severally denote the same object, but connote more especially different features. *Substance* points to the general fact of *existence per se*; *essence* points to the *reality of which the being is constituted*; *nature* signifies the *essence as principle of activity* *Suppositum* implies that the substance, essence, or nature subsists in itself in possession of such complete individuality as to be incommunicable or incapable of being assumed into another being. The invention of the term is due to the dogma of the Incarnation. In Christ, the Church teaches, there is *one Person*, *one rational* "*suppositum*," but two *natures* The Human Nature of our Lord does not of itself constitute a *Person*, or subsist *in se*, but by the subsistence of the Divine Nature.

The terms *Matter* and *Form*, with their derivatives, have had as varied and extensive an application as any words in the language. The importance of what is signified by each has been so changed that the original usage is almost completely inverted. The followers of Aristotle used these words as equivalent to *potentia* and *actus*. *Potentia* signified possibility—the potential, the unrealized, the incomplete or indeterminate. *Forma* and *Actus*, on the contrary, connoted *full actuality*—the *last complement of reality*, the *final determination* or *complete realization of being*. Now-a-days we speak of merely *formal* observance, unreal *forms*, and trivial *formalities*, whilst *material* is equivalent to important. The transition has been going on for a long time; but in strictly philosophical literature, Kant has done most to bring about the change. Whereas with Aristotle, Matter and Form are Ontological or extra-mental principles of real things, with Kant they are constituents of Subjective knowledge. The German philosopher, as we have already pointed out, uses the term "form" to denote a purely mental mould or character, which the mind imposes on the "matter" of knowledge. The latter, though of course a mental activity, is supposed to be excited or contributed from without. *Formal* is thus equivalent to *unreal*, or *objectively non-existent*. *Material* truth is *real* truth, or agreement with extra-mental reality as far as that is possible: *formal* truth is mere subjective consistency. Kant, however, retains something of the ancient application of the term in as far as he conceives the "material" element in cognition to be in itself of a chaotic *indeterminate* nature, requiring to be perfected and wrought into rational intelligibility by the imposition of the subjective determining factor.[8]

Our present chapter ought to have rendered intelligible and justified Aristotle's celebrated definition: "The soul is the first entelechy of a natural organized body potentially having life," or "the first entelechy of a natural body capable of life."[9] By *entelechy* is meant in the Peripatetic philosophy an actualizing or determining principle, as opposed to a recipient or determinable subject—*form* as contrasted with *matter*. The epithet, *first*, implies that the soul is the *primary* form by which the nature or specific substance of the creature receives its determination in the order of being. It is contrasted with *secondary* or *accidental* forms, *e.g.* heat, colour, motion, which may supervene when the *primum esse*, the first complete substantial being of the object, is constituted. A *natural* or *physical* body, signifies that the subject of the soul is not a mere *artificial* aggregate. The adjective, *organized*, expresses the fact that the body is composed of heterogeneous or dissimilar parts adapted for separate functions. The last words of the definition mean that the soul is united not with an *actually* living being, but with an organism capable of exercising vital activities when informed by the soul.

The chief difficulty urged against the thesis of the present chapter is based on the spirituality of the human soul. It is said that since intellect is a supra-organic faculty, intrinsically independent of matter, it cannot be the faculty of a principle which is the *form* of a body. In reply we admit that intellect could not be the faculty of a form *completely dependent* on its material substrate; and it must be remembered that although Aristotle's definition of soul in general applies also to the Human Mind, nevertheless, the latter, unlike other informing principles, is not intrinsically or completely dependent on the subject which it animates. But there is no impossibility in a substantial principle, which, although it informs a living body, yet being endowed with a spiritual faculty, transcends and exceeds the sphere of a merely organic form. There is no contradiction, as we have before shown, in a spiritual principle possessing capabilities of an inferior as well as of a superior order. Moreover, we have proved that the human soul is *de facto* the source of both classes of faculties, consequently the asserted objection is untenable.

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[8] In addition to Kant's influence, popular experience of the unimportant character of accidental forms, *e.g.* the shape as contrasted with the contents of a pudding, has also contributed to the change in the meaning of the word

[9] *ἡ ψυχή ἐστιν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ ζωὴν ἔχοντος δυνάμει*, or *ἡ πρώτη ἐντελέχεια σώματος φυσικοῦ ὀργανικοῦ.*

Readings --St Thomas, *Sum.* i. q. 76; Father Harper, *Metaphysics of the School*, Bk. V. cc. ii. iii.; Kleutgen, op. cit. §§ 808—842

CHAPTER XXVI.

LOCUS OF THE SOUL. PHRENOLOGY: LOCALIZATION OF CEREBRAL FUNCTIONS.

THERE has been much discussion among philosophers, Ancient and Modern, regarding the precise part of the body to be assigned as the "seat" of the soul. Some have located it in the heart, others in the head, others in the blood, others in various portions of the brain. The natural inference from such a diversity of opinions is that no special area of the organism is the exclusive dwelling-place of the vital principle. The hopelessly conflicting state of opinion on the question would seem to be due to the erroneous but widely prevalent view, that the simplicity of essence or substance possessed by the soul is a spatial simplicity akin to that of a mathematical point. As a consequence, fruitless efforts have continually been made to discover some general nerve-centre, some focus from which lines of communication radiate to all districts of the body. The indivisibility, however, of the soul, just as that of intelligence and volition, does not consist in the minuteness of a point. The soul is an immaterial energy which, though not constituted of separate principles or parts alongside of parts, is yet capable of exercising its virtue throughout an extended subject. Such a reality does not, like a material entity, occupy different parts of space by different parts of its own mass. In scholastic phraseology it was described as present throughout the body, which it enlivens, not *circumscriptive*, but *definitive; not per contactum quantitatis*, but *per contactum virtutis.* Its presence is not that of an extended object the different parts of which fill and are *circumscribed* by corresponding areas of space, but of an immaterial energy exerting its proper activities ubiquitously throughout the living body. As it does not possess extension, it is not susceptible of *contact* after a quantitative manner, yet it puts forth its peculiar virtue, and acts with the same efficiency as if it possessed a surface capable of juxtaposition with that of a material body.

Against the doctrine that *the soul is confined to any particular spot within the organism*, the argument may be formulated thus: The site or *locus* assigned must be conceived either as extended or unextended. If the latter, then: (1) all hope of any physiological justification of the selected spot must be abandoned, since the smallest cell, and *a fortiori* every general nervous ganglion, must occupy an extended space; and (2) no particular unextended point has better claims than any other; therefore on this hypothesis the soul might with equal reason be located in almost any part of the body. If the site allotted be extended, then the chief merit claimed for this view is abandoned. If the simple soul is allowed to be capable of inhabiting a really extended locality, the exact area of the district is of little philosophical importance: the soul's indivisibility is equally unaffected whether the space be a cubic inch or a cubic foot.

The soul is present, though in a non-quantitative manner, throughout the whole body: moreover, it is so present everywhere in the entirety of its essence, although it may not be capable of ubiquitously therein exercising all its faculties. The refutation of the error just exposed implicitly establishes our own doctrine. Reflexion, however, on the thesis demonstrated in the last chapter completes the argument. The soul, since it is the substantial form of the body, vivifying and actuating all parts of its material subject so as to constitute one complete living being, must by its very nature be ubiquitously present in the body. For it is only by the *immediate communication of itself* that it can so actuate and vitalize its co-efficient as to constitute a single substance. Again: since the soul is an indivisible essence or being, wherever it is present it must be there in the entirety of that essence or being; consequently, the entire soul is present in the whole body and in each part—*tota in toto corpore et tota in qualibet parte.*

The chief objections urged against the present thesis seem to be the following: (1) The soul is the subject of sensations, but these, it is asserted, are originally felt only in the brain, and by experience thence transferred to the peripheral extremity of the irritated nerve; consequently the soul exists only in the brain. (2) It is impossible to imagine how a simple or indivisible Being can be simultaneously present in several parts of an extended space. (3) If the soul is thus diffused throughout the body, it must be capable of increase and diminution with growth, and of occasional amputation of portions of its substance.

We may observe in reply: (1) Even if the brain alone be the centre of sentiency, yet the entire organism is the subject of vegetative life, and must be throughout animated by the energy which dominates the continuous processes of waste and repair. (2) Imagination is no test of possibility; we have experience only of the modes of action of things conditioned by space of three dimensions, and so cannot picture the being or action of an agent free from such limitations. We are similarly unable to imagine how unextended volitions can move extended limbs, or how spatial pressure can excite non-spatial pain, but we have shown the absurd consequences which follow from the denial of the universal conviction of mankind on these last points. (3) The soul is not *diffused* throughout the body like water in a sponge. It must be conceived as an indivisible essence, without mass or quantity, exerting energy and putting forth its virtue throughout the animated organism. Those activities, however, which require a special organ are limited to the district occupied by the bodily instrument. In so far as the material subject by the limits of which vital activity in general is defined and conditioned increases or diminishes, the soul may be said in figurative language to experience *virtual* increase or diminution—an expansion or contraction in the sphere and range of its forces; but there is no real *quantitative* increase in the substance of the soul itself.

PHRENOLOGY: LOCALIZATION OF CEREBRAL FUNCTIONS.—In the early part of this century, the physicians Gall and Spurzheim elaborated a "Physiognomical system," which pretended to determine precise localities on the surface of the brain where various mental powers are situated. Gall marked out the skull into twenty-six, and Spurzheim into thirty-five divisions, each of which was supposed to cover a definite field of the brain constituting the "organ" of some particular mental aptitude. The theory thus assumed above two dozen primary faculties or propensities, such as those of homicide, property, theft, wit, number, secretiveness, &c., lodged in separate compartments in the surface of the brain. Consequently, by measurement of human skulls, the relative vigour of the several propensities could, it was maintained, be discovered, since special "bumps" or protuberances necessarily indicate greater or less endowment in the corresponding faculty.

Phrenology, Craniology, or Cranioscopy, as this pseudo-science was called, has long since fallen into complete discredit, under the destructive criticism of both Psychology and Physiology. The scheme of "primary" faculties was arbitrary and artificial in the highest degree. The powers and aptitudes enumerated are not isolated or independent in the manner implied. Many of them are complex capabilities involving varied forms of mental activity. Moreover, intellectual faculties cannot be conceived as located in organs in the way represented. The progress of physical science, on the other hand, has proved the erroneous character of the views of the phrenologists concerning the physiology of the brain.

Although Phrenology in its originally ambitious character is now generally acknowledged to be exploded, Cerebral Physiology has for some twenty years past been working diligently at the kindred question of the *localization of brain functions.* The leading scientific authorities in the second quarter of this century unanimously declared themselves against the hypothesis of *localization* in any form. Flourens, Magendie, Longet, and other distinguished writers pronounced, on the strength of numerous experiments and observations, that scarcely any particular portion of the cerebral substance is essential to the performance of any particular psychical operation.[1] Consequently, the classical Physiology from 1820 to 1870 proclaimed that the brain *as a whole* was the *single organ* of the mind, that the *quantity*, not the *locality*, of the brain which is destroyed affects mental activities, and that the degree of imbecility induced is, roughly speaking, in proportion to the amount of cerebral matter removed.[2]

Some experiments, however, of the German physiologists Fritsch and Hitzig, in 1870, threw serious doubts on the then prevalent doctrine, and a new movement of research, which still continues, was initiated, with the result of completely overthrowing the old teaching. By a series of elaborate experiments on the brains of dogs, monkeys, and other animals, Hitzig, Ferrier, Munk, Luciani, and others, have established a fairly definite theory of localization of "motor-centres"—that is, of areas in the cortex of the brain the irritation of which produces movements in particular limbs. It is also claimed by the advocates of localization that the cerebral "centres" corresponding to the various senses have been discovered. This part of the theory, however, is much more energetically contested. As regards the nature, the locus, or even the existence of the physical concomitants of the *higher* mental activities absolutely nothing is at present known.

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[1] "On peut retrancher, soit par devant, soit par derrière, soit par en haut, soit par côté, une portion assez étendue des lobes cérébraux, sans que leurs fonctions soient perdues. *Une portion assez restreinte de ces lobes suffit donc à l'exercise de leurs fonctions.* A mesure que ce retranchement s'opère, toutes les fonctions s'affaiblissent et s'éteignent graduellement . Enfin, dès qu'une perception est perdue, toutes le sont; dès qu'une faculte disparait, toutes disparaissent." (Flourens) Cf Bastian, *Brain as an Organ of Mind*, p 520.

[2] "Sur des chiens, des chats et des lapins, chez un grand nombre d'oiseaux, j'ai eu occasion d'irriter mécaniquement la substance blanche des hémisphères cérébraux ; de la cauteriser avec la potasse, l'acide azotique, le fer rouge, &c. ; d'y faire passer des courants électriques en divers sens, *sans parvenir jamais à mettre en jeu la contractilite musculaire :* même résultat négatif en dirigeant les mêmes agents sur la substance grise des lobes cérébraux." (Longet.) Cf. Surbled, *Le Cerveau*, p. 149.

In the study of cerebral functions three chief lines of investigation present themselves: (*a*) Experiment by stimulation and extirpation of particular portions of the brains of the lower animals; (*b*) Cerebral Pathology, or the science which deals with brain diseases in human beings; and (*c*) Comparative Anatomy and Histology, which examine the structural connexions of different parts of the brain and nervous system throughout the animal kingdom. Thus, the stimulation by electricity of certain areas in the cortex of the brain of dogs, monkeys, and other animals, is found to excite movements in the neck, arms, fingers, legs, tongue, &c. Conversely, the extirpation or destruction of these same portions of the brain temporarily suspends the power of movement in the corresponding limb. Again, *post-mortem* examinations often show that atrophy and disease of the cerebral substance of these areas have been concomitant with paralysis of the appropriate limb. Moreover, several cures of such local paralysis have also been already effected by the venturesome remedy of trepanning the skull and removing tumours found to exist where anticipated.[3] Finally, comparative study of the structure of the brain in different species of animals tends to establish the identity of the "areas" constituting the "motor-centres" of the several limbs, and it also shows that the number and definiteness of such "areas" increase in proportion as we rise in the animal kingdom and examine more highly specialized brains.

By means of these various methods of research Dr. Ferrier has succeeded in mapping out over a dozen "motor-centres" on the surface of the brain. They are nearly all situated in the vicinity of the summit of the cerebrum about mid-way between the forehead and back of the skull—technically, in the *gyri centrales* and the *lobulus paracentralis*. The cerebral "areas" of the *senses* he locates mainly in the occipital or hind portion of the brain. The frontal region is as yet "silent," that is, not responsive to stimulation; and, accordingly, there is no evidence for the assignment to it of any particular functions. Some writers on this account speak of this portion of the cerebrum in a vague way as the "seat of general intelligence." We have already shown the absurdity of attempting to conceive the higher faculties as situated in or exerted by means of bodily organs. It is possible, however, that this part of the cerebrum may supply the material basis for the internal sensuous faculties upon which intellectual activity is more immediately dependent. Still, the fact that serious lesions involving the destruction of extraordinarily large quantities of brain in this region without appreciably affecting any mental operations are frequently met with, whilst apparently slight injuries in other districts have often produced profound intellectual derangement, shows the precarious character of even this conjecture.[4]

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[3] Cf. Surbled, *Le Cerveau* pp. 239, seq.

The "motor-centre" is usually found on the side of the head opposite to the bodily member to which it is specially related; but *speech*, and other psychical operations not belonging definitely to either side of the organism are generally dependent on physical processes in the *left* hemisphere, except in the case of left-handed persons, who, it is said, are "right-minded" or rather "right-brained." The disease of aphasia in right-handed persons is, as a rule, accompanied by a lesion in the third left frontal convolution. It seems also fairly proven that symmetrical portions of the brain in the right and left hemispheres are capable of performing similar functions, and it is chiefly—though not exclusively—in the relations subsisting between these corresponding parts that we find exhibited the *law of substitution*, which constitutes such a serious objection to all theories of localization.

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[4] Cf. Ladd, *Physiological Psychology*, pp. 265—268, 296, 297.

On this general fact, together with exceptional cases presented by Pathology, the case of the opponents of localization mainly rests. It is true, say they, that irritation of a motor-area excites movement in the corresponding limb, and conversely, the extirpation or destruction of this part of the brain temporarily extinguishes or enfeebles the power of movement; but, nevertheless, if the animal be kept alive, it may after a few days recover complete use of the member again. In other words, some new portion of the cerebrum is capable of adopting the suspended function.[5] The part most fitted to do so seems to be in the first place the symmetrically corresponding area on the other hemisphere, and then the cerebral substance immediately surrounding the damaged centre. In addition to this difficulty *post-mortem* examinations have revealed several cases in which a very large part of one side of the brain, and even a not inconsiderable portion of both were atrophied or decayed, although no derangement in psychical operations, or in the action of the corresponding limbs, had been noticed during life.

These objections indicate clearly how imperfect our knowledge of the relations between the brain and psychical action still is, and they also show how little foundation there is for the vaunting tone of certain materialistic scientists. At the same time we do not think they are conclusive against the doctrine of localization in *every* form. They indisputably demonstrate that the "centres" are not instruments of an absolutely fixed and permanent character like the external sense-organs. But they do not disprove the statement that the various sentient and motor operations of the soul are, in ordinary conditions, specially dependent on particular parts of the brain, whilst the evidence on the other side makes this latter assertion well-nigh incontrovertible. They establish, however, that the principle which dominates the living organism has, within certain limits, the power of adapting to its needs and employing as its instruments other than the normal portions of the cerebrum.[6]

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[5] The eminent physiologist Goltz is perhaps the most distinguished assailant of localization theories. According to him, "It is not possible, by extirpating any amount of the substance of the cortex on either side, or on both sides, to produce a *permanent* laming of any muscle of the body, or a total loss of sensibility in any of its parts. It is, however, possible thus to reduce an animal to a condition of almost complete idiocy. . . . No part of the cortex of the brain can, then, be called the *exclusive* organ or centre of intelligence or feeling; but the psychical functions are connected with all of its parts." (Cf. Ladd, op cit. p. 298)

Although this question of *brain functions* pertains rather to Cerebral Physiology than to Psychology, we have deemed it advisable to treat the subject at some length here. The statement that the progress of Physiology has discredited or disproved the doctrine of the spirituality of the soul, is so frequently to be met with that it is extremely desirable the student should have at least a general notion of the character and value of the most recent investigations in Cerebral Physiology. Vague sweeping assertions, especially when uttered by men distinguished in Physical sciences, often give rise to a completely mistaken idea of the nature of the "recent advances in Physiology." We trust that our sketch of the subject will enable the reader to judge the worth of such materialistic declarations.

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[6] The original researches of Dr Ferrier on this subject are to be found in his work, *The Functions of the Brain.* (2nd Edit 1886.) Dr. Bastian's volume, *The Brain as an Organ of Mind,* c. x. contains a history of theories of Phrenology and Localization. There is a long account and an absurdly exaggerated estimate of Gall in Lewes' *History of Philosophy.* It is lamentable that these writers cannot discuss a scientific question without the introduction of materialistic dogmatism as unjustifiable as it is irrelevant A brief but very good treatment of the question of localization is to be found in the article "Brain" in *Chambers' Encyclopedia,* (New Edit. 1888); a lengthier account is given under "Physiology," *Encyc Brit.* (9th Edit. 1885.) The substance of Ferrier's work is given in Professor Calderwood's *Relations of Mind and Brain* (1879), pp. 79—122. The best and most impartial handling of the subject, however, which we have seen is that by Ladd, op cit. Pt. II cc i. ii (1887.) A clear and interesting account of this question, with an admirable treatment of other physiological topics bordering on Psychology, are given in Dr. Surbled's excellent little work, *Le Cerveau.* (Paris · Retaux-Bray, 1890.)

CHAPTER XXVII.

ORIGIN OF THE HUMAN SOUL. EVOLUTION.

MODE OF ORIGIN OF THE SOUL.—Of philosophers holding erroneous ideas regarding the origin of the human soul, some have conceived it as arising by *emanation* from the Divine substance, others as derived from the parents. The former theory starts from a Pantheistic conception of the universe, and is in conflict with the simplicity and absolute perfection of God. The hypothesis that the soul is transmitted to the offspring by the parents—and hence called the theory of *Traducianism*—has taken a variety of forms. Some writers have maintained that the soul, like the body, proceeds from the parental organism: others that it comes from the soul. This latter opinion was advocated in Germany, in the early part of this century, by Dr. Frohschammer, under the title of *Generationism.* The soul in this view is generated, or perhaps more accurately speaking, created by the parents. Rosmini taught that the sentient principle arises by generation or traduction, and is afterwards converted into the rational soul by a mysterious illuminative act of God, through which the intellect is awakened to the idea of *being.*

Traducianism, whether understood of a corporeal or incorporeal seminal element, is an inadmissible theory. As regards the derivation of the rational soul of the child from the body of a parent, it is obvious that such a supposition is based on a materialistic conception of the nature of the mind. *Nemo dat quod non habet:* a spiritual substance cannot proceed from a corporeal principle. The derivation, however, of the rational soul from the soul of a parent is equally untenable. Every human soul is at once a simple and an immaterial substance. Consequently, the hypothesis of any sort of seminal particle or spiritual germ being detached from the parental soul is absurd. If the soul of the child, moreover, were generated or evoked out of the potencies of matter, it could not be a spiritual being endowed with intellect and will, and intrinsically independent of matter.

Opposed to these various theories stands the doctrine of *Creation,* according to which *each human soul is produced from nothing by the creative act of God.* The acceptance of this thesis is a logical consequence of the rejection of the previous views. By *creation* is meant the calling of a being into existence from nothing, the production of an object as regards its entire substance. The material things which we meet around us are a result of *transformation* or change, not of creation—though of course their ultimate constituents must have been originally created. A spiritual being, however, cannot be effected by any such process of transformation. If produced at all, it must be formed from nothing.

Now, the human soul is a spiritual substance, whilst at the same time it is of finite capacity, and therefore a contingent being. But because of its contingent and limited nature it cannot be self-existing; it must have received its existence from another being. On the other hand, inasmuch as it is a spiritual being intrinsically independent of matter, it cannot have arisen by any process of transformation; for, if it did so arise it would necessarily depend as to its whole being on its subject. Finally, since God alone, who exists of Himself, and who alone possesses infinite power, can exert the highest form of action, calling creatures into existence from nothing, the production of the human soul must be due immediately to Him.[1]

Objections.—The chief objections urged against the doctrine of creation are the following: (1) The sentient-vegetative soul in man is of the same *genus* as that which informs the brute; consequently, since the latter is generated by substantial transformation, so is the former. (2) Like end must have like origin; but the human soul is immortal; therefore it must never have had a beginning. (3) The theory of creation involves continuous exercise of miraculous power on the part of God. To these difficulties the following answers may be given: (1) If the root of sentiency and vegetative life in man were an organic principle completely and intrinsically dependent on the body, as it is in the lower animals, then there would be no ground for affirming a special mode of origin in the case of human beings. But, although man's soul is generically related to that of the brute, it is separated from the latter by a specific distinction which involves this different mode of genesis. (2) The second objection has seemed very forcible to some minds, and we find even Dugald Stewart[2] holding that it destroys the argument for everlasting life based on the simplicity and incorruptibility of the soul. Yet it appears to us really a very superficial difficulty, when carefully examined. We simply deny that the end of a creature must be like its beginning in the way asserted. God alone is without beginning, but He can will to exist whatever is not intrinsically impossible, and He may will it to last for ever. Consequently, there can be no absurdity in His creating from nothing a simple incorruptible being which He designs never to perish. (3) A miracle is an interference with the laws of nature, but in the given case creation of souls, when the appropriate conditions are posited by the creature, is a law of nature.

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[1] The proof that creative power pertains to God alone belongs to Natural Theology The argument is based on the fact that in creation the effect depends *solely* on the efficient cause. It is, therefore, the highest and noblest mode of action, and consequently must proceed from an agent endowed with the highest form of being - self-existence. A creature cannot even play an *instrumental* part in creation; for the function of an instrument is to dispose and arrange the pre-existing materials, but antecedently to the creative act there are no such materials.

Time of its Origin.—When does the human soul begin to exist? Plato taught that previous to its incarceration in the body the soul had from all eternity resided among the gods in an ultra-celestial sphere. In that ideal land it contemplated Truth, Goodness, and Beauty, as they are in themselves, and its present cognitions are merely faint cloudy reminiscences of the knowledge it once possessed. The theory of Metempsychosis or Transmigration of souls, has been held under one shape or another by many Eastern thinkers. The doctrine, however, in all its forms, is a gratuitous and absurd hypothesis. It is based on the false view which conceives body and soul as accidentally and not substantially or essentially united in man, and it possesses not a vestige of real argument. Consequently, it is a tenet which is becoming gradually extinct.

Among modern philosophers, Leibnitz has considered human minds along with all the other "monads" to have been created simultaneously by God, at the beginning of the world. All souls were conserved in a semi-conscious condition inclosed in minute organic particles ready to be evoked into rational life when the fitting conditions are supplied. Lotze, also, in some of his writings seems to incline to the doctrine of pre-existence. Proof or disproof is here out of the question. If a writer asserts that his own soul, or that of anybody else, existed centuries ago in an unconscious state, we cannot demonstrate that the proposition is false; we can only point out that there is no evidence for such a statement. It is simply a gratuitous assumption. No sufficient end can be conceived for the sake of which such an unconscious life could be vouchsafed to the soul, and, consequently, it may be rejected as a useless and incredible hypothesis.

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[2] Lotze's defective view as to the nature of *substance* leads him into a similar error. Dr Martineau's work, *A Study of Religion*, p 334 (2nd Edit.), has some good observations on this point.

The true doctrine as to the time of the origin of the rational soul is that which teaches that it is created precisely when it is infused into the new organism. There are two tenable views as to the exact moment of this event. One holds that the rational soul is created and infused into the new being at the first instant of its existence: the other, supported by St. Thomas, assigns a somewhat later period for this occurrence. Following the embryological teaching of Aristotle, St. Thomas holds that during the early history of its existence the human fœtus passes through a series of transitional stages in which it is successively informed by the vegetative, the sentient, and, finally, by the rational soul. Each succeeding *form* contains eminently in itself the energies and faculties of that upon which it is consequent. The advent of the rational soul only occurs, St. Thomas maintains, when the embryo has been sufficiently developed to become the appropriate material constituent of the human being. The embryonic history of man is, then, in this great Catholic philosopher's view, that of a progressive evolution in the course of which the future rational being passes through a series of transitory stages not unlike the various grades of life to be found on the earth.

The chief epoch of course in the narrative, is the infusion of the rational soul into the new organism, from which date the specific nature of man is determined and further essential transformation ceases.[3]

ORIGIN OF THE FIRST HUMAN SOUL.—DARWINIAN THEORY.—The modern doctrine of Evolution ramifies into a large number of sciences, and its satisfactory discussion involves a multitude of questions pertaining to Biology, Geology, Physical Astronomy, Rational Theology, and Scriptural Theology, as well as Psychology. In the very limited space at our disposal here, it would of course be worse than useless to attempt anything beyond the most restricted treatment of the bearing of the theory on the origin of the human soul. There are, it is scarcely necessary to observe, profound differences of opinion amongst upholders of Evolution as regards its range, and the nature of the agencies directing its course. For our present purpose, however, we may roughly group evolutionists of all shades into four classes:

First, there is the most extreme sect, whom we may fairly describe as the Atheistic Materialistic school. These philosophers are not very explicit as regards the origin of life on the earth. Since, however, Geogony establishes that there must have been such a beginning, they presumably suppose that life was initiated by a fortuitous concourse of particles of dead matter. Its development thenceforward was governed solely by the law of *Natural Selection*. The action of this law may be described in the statement that "those individuals to which casual variations in structure or habit afford advantages in the struggle for existence will tend to triumph over their rivals, and to perpetuate these utilities in their offspring." In the lapse of immense ages of time these variations become wider and more marked, until finally we arrive at the vast multiplicity of species which dwell upon the globe to-day. In this view man is the highest being in the universe, but his intellect has its source in the properties of inorganic matter; and all things in the world, the human eye as well as the instincts of the bee, are ultimately the result not of a designing Mind, but of the fortuitous collisions of blind material forces. We have in the course of the present work exposed a few of the intrinsic absurdities inherent in all such materialistic theories, and the reader will find others discussed in the volume on Natural Theology.

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[3] The English reader wishing to study this doctrine of St. Thomas, which has acquired considerable interest in connexion with the modern theory of Evolution, will find an elaborate treatment of the question in Father Harper's *Metaphysics of the School*, Vol. II. pp 553—561. Having shown that St. Thomas's teaching of a "progressive development of being" in all embryonic life is in harmony with the most recent physiological science, he urges that "*this theory serves to throw light on the perfection of the cosmic order*. . . . For, the truth of the teaching for which we are contending once admitted, not only must we acknowledge a gradual evolution of the whole complex and multiform universe of material substances from a few simple elements created in the beginning; but it is also manifest that this wondrous evolution is, so to say, more or less epitomized in the germ-history of each living individual in that universe. Successive Forms march through the captive Matter gradually evolved from the predisposed Subject; till they reach their climax where the potentiality of Matter fails, and the creative power of God supplies the needed Form." (p. 560)

A second class of evolutionists, whilst holding that all living species have been gradually evolved from one, or perhaps from a few original types, nevertheless conceive the course of development to have been designed and directed by a Superior Intelligence; and to this Being they would also ascribe the production of the primitive living creatures. Writers of this school do not, as a rule, give a very satisfactory account of the genesis of the first man. They seem to consider that the human soul possesses to-day a spiritual nature, whilst they appear to believe that in the remote past it was gradually evolved out of a non-spiritual principle, which animated the lowest forms of animal life. This opinion is also obviously in conflict with the Christian doctrine, that Adam was formed by a special act of God.

The third school agree with the second in maintaining that all the lower animals, and the *bodily frame* of the first man, may have been produced by a divinely directed evolution from a few, possibly from a single original type; but they are clear and emphatic in teaching that the *first rational soul*, and consequently the first *human being*, cannot have arisen by Evolution. It must, they assert, have been brought into existence by the special creative intervention of God.[4] In this view, God may have formed the *body* of Adam out of the organism of some highly developed animal, which He modified as much as was requisite, and then infused with a rational soul.

It is sometimes urged that this hypothesis makes Adam the offspring of an ape, that he would therefore owe filial reverence and obedience to a brute parent, and that, consequently, the theory is degrading to human nature. Now, it seems to us that such a line of argument is based on a complete misinterpretation of the view in question. Whatever real dignity man has got comes from the soul, not from the body; and in any case it is not easy to see that an animal organism, developed to as high a state of perfection as physical laws can bring it, is baser material to form the body of man than the "slime" of the earth.[5] The Bible and Christian moralists of all ages continually impress on us that man's body is but dust, and that its proximate future is corruption and worms. Similarly as regards parental rights: the fact that the constituents of the first human frame were derived from a living but irrational animal could no more constitute a claim for filial obligations than does the metaphorical parentage of Mother Earth. On the grounds of reason alone there can, it seems to us, be no cogent argument framed against such a hypothesis when carefully stated. It is indisputable that God *could* form the body of the first man as easily out of a living organism as out of dead matter. And were the general doctrine of Evolution *demonstrated* as regards all other animal organisms, there would in the light of pure reason be obviously—from the likeness of the life history of the individual human body to that of the brute—a fair presumption in favour of a similar origin.

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[4] Writers of this school maintain, moreover, that their teaching is in harmony with Scripture Dr. Mivart, as is well known, is the chief representative of this doctrine here at home. Cf. *Genesis of Species*, c xii

[5] On the text, "Formavit igitur Dominus Deus hominem de *limo* terræ," M. d'Estienne fairly urges, "Toute la question est de savoir si ce *limon* cette *boue*—doit s'interpréter nécessairement dans le sens strictement littéral, ou si l'on peut loisiblement admettre cette interprétation: 'de limo *jam viventi, jam animato*.'" Cf. *Le Transformisme et la Discussion Libre*. (*Revue des Questions Scientifiques*, January, 1889.)

The real question, then, for the Catholic is: Can the *revealed* doctrine of Holy Writ be reconciled with this theory? The most general and reasonable Canon of Scriptural interpretation is that the natural and literal sense of a passage is always to be accepted, until sufficiently cogent reason can be adduced for deviating from that meaning. The problem, therefore, is: Taking all scientific evidence in favour of Evolution on the one side, and on the other the presumption in favour of the literal signification of the particular Scriptural texts directly bearing on the point, the meanings literal and mystical attached to other passages related to the former, the consensus of traditional theological teaching, as far as this testimony may fairly be cited on what is, at least in certain important aspects, a new question, together with the scientific objections urged against the development hypothesis—taking, we say, all this evidence into account—is the evolutionist interpretation of Holy Writ legitimate? The question thus stated is not for the rational psychologist, but for the theologian to answer. The Church has not yet made any pronouncement on the subject, and it would under the circumstances seem unjustifiable to condemn the wider interpretation as absolutely untenable.[6] At the same time the Catholic student of science must be prepared to admit that the Church is certainly capable of deciding on the point if occasion arise. The Church in defining articles of faith may at times indirectly determine a scientific truth, or a question of historical fact, and the Catholic must be ready to believe that an infallible authority will not be permitted to err in such matters.

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[6] There is little doubt that the great majority of theologians up to the present look on this interpretation as unsafe; but there are some writers of credit to be found on its side. Père Leroy, O.P., an author well versed both in Theology and Natural Science, is perhaps the most distinguished theological advocate of Evolution He has, moreover, secured the approval of his work by Père Monsabré, as not being in conflict with Faith. (Cf. *L'Evolution des espèces organiques*, 1887. Paris: Perin.)

A fourth class of thinkers, whilst allowing that all the lower animals may, through the instrumentality of natural laws, have been gradually evolved by God from a few original types, and that such a view is reconcilable with Revelation, hold that even the material part of man cannot be admitted to have thus arisen. They maintain that man's position in the universe, in spite of the fact of his being an animal, is so unique, that even the animal factor in his nature must have had a mode of origin differing from that of inferior species and peculiar to himself. Whilst granting that the language of the Bible describing the production of brutes may be interpreted in a free or metaphorical sense, they consider that the passages referring to man must be accepted according to the strictest and most literal signification.

Finally, opposed to all forms of evolutionism alike, stand many thoughtful men, who are so impressed, both by the atheistic dogmatism of the most extreme sect of Darwinians, and by the numerous weighty scientific objections which the new theory seems utterly unable to explain, that they believe the only rational course in a question of such grave moment is to stand firmly by the verbal translation of the Mosaic account, and to reject the development creed no matter how limited or explained.

The business of the rational psychologist, fortunately for us, is neither the Theology nor the Philosophy of the Evolution hypothesis, whether as applied to the animal species or even to the body of man: our official concern is with the human *soul.* Now, apart altogether from Faith and Revelation, we maintain on the grounds of pure reason that:

The Human Soul ***cannot be the result*** *of* ***gradual evolution from a*** *non-spiritual* ***principle.*** The argument by which we have established that each individual rational soul owes its origin to a Divine creative act, proves *a fortiori* that the first of such souls must have thus arisen. Since even the spiritual soul of a human parent is incapable of itself effecting a spiritual soul in its offspring, it is evident that the merely sentient soul of a brute could still less be the cause of such a result. Again: the human soul we have shown to possess the spiritual faculties of Intellect and Will, and to be therefore itself a spiritual principle, intrinsically independent of matter; but such a being could never arise by mere continuous modifications of a vital energy intrinsically dependent on matter. The activities of self-consciousness and free volition, which are radically distinct from all merely sensuous life, and which can only pertain to an immaterial subject, could not be developed out of phenomena absolutely depending on a material organism. No complexity of appetites or desires inexorably determined by physical conditions can pass into Free-will; and no refinement of sentiency can constitute reflex self-knowledge. Moral notions, too, and Conscience, are all facts *sui generis* which' could never have been produced by the gradual transmutation of irrational states. In a word, all the proofs by which we established the spirituality of the higher faculties, and of the soul itself, demonstrate the existence of an impassable chasm between it and all non-spiritual principles, whether of the amœba or the monkey. The special intervention of God must, therefore, have been necessary to introduce into the world this new superior order of agent—even if He had previously directed the gradual development of all non-spiritual creatures by physical laws. The origin of the first man consequently must have been a supernatural event.

Readings.—On the Origin of the Soul, cf. St. Thomas, *Sum.* i. q. 90. c. xviii. On Evolution, cf. Mivart, *Genesis of Species*, also *On Truth*, c. xxvii.; J. Gerard's *Science and Scientists* (London. Catholic Truth Society, 1889); Leroy, *L'Evolution des Espèces Organiques;* Lavaud de Lestrade, *Transformisme et Darwinisme* (Paris, 1885); Arduin, *La Religion en face de la Science*, Vol. II. pp. 213—441 (Paris, 1883); Quatrefages, *The Human Species*, cc. vii.—xi.; and Janet, *Final Causes*, Bk I. cc. vii. ix

SUPPLEMENTARY CHAPTER.

ANIMAL PSYCHOLOGY.

THE aim of a "comparative" science is to examine and compare the varying manifestations of some phenomenon, or group of phenomena, in different species of objects. *Comparative Anatomy* thus seeks to ascertain the likenesses and differences exhibited in the structure of different classes of animals. *Comparative Philology* in the same way endeavours to trace the history of cognate words by contrasting the various forms which they have assumed in different languages. The science of Comparative Psychology—were anything deserving the name of science on the subject possible—would similarly investigate the nature of mind by comparing its manifestations in man and the various species of the brute kingdom.

Some recent writers seem to expect that immense benefits will accrue to Psychology by the employment of this method of comparative study, which has undoubtedly done much to illuminate obscure facts in other branches of knowledge. Now, premising that in our view Human Psychology, or Psychology proper, ought to base its doctrines on a careful study and comparison of the mental phenomena of human beings of all races, of all ages, and of all stages of intellectual and moral cultivation, and, further, admitting that assistance may be derived, especially in the investigation of the lower appetitive, emotional, and cognitive activities from the observation of animal life, we must, nevertheless, frankly confess our belief that in the science of the Mind the comparative method will never be very fruitful in positive results. It must not be forgotten that Psychology differs essentially in character from all these other departments of knowledge in which the new method has proved so effective; and, moreover, the difference is of a kind which tells directly against the application of that method. In the other comparative sciences we can directly examine the specimens selected from different groups; here we cannot. Nay, as acute a thinker as Descartes was found to deny that there are any such specimens in existence at all. The anatomist can study with as much ease and security the vertebral column of a fish, or an elephant, as that of a human body. The philologist can investigate with as much confidence the growth of a word in a foreign language as in his own. But real knowledge of the mental states of the dog or the bee is utterly impossible to the psychologist.

This difficulty can never be effectually bridged over. A little careful reflexion must convince us that, no matter what pains and industry be devoted to observation of the actions of the lower animals, our assurance regarding the genuine character of their subjective states can never be more than a remote conjectural opinion. The existence of any other human mind than our own, it should be remembered, is believed not on the strength of direct intuition, but of a mediate analogical inference. By a process of perception, which we have described in Pt. I. c. vii., we come to know the existence and character of our own body, and of the material objects which act upon us. Of prominent interest amongst external things are certain bodies strikingly similar to our own. In our own case we find that the impressions of some of the external agents cause particular mental states within us, which, in turn, give rise to definite physical actions observable by our external senses. Noticing the similarity of antecedent and consequent in the case of organisms like our own, we insert in them an intermediate conscious link as effect of the former and cause of the latter. The essential elements in the argument are the similarity of organisms and the like character of the resulting actions. Of these latter, *language* is incalculably the most important, especially in indicating to us the *quality* or *nature* of the consciousness of these other beings. It is at once a measure of intellectual development, and the great medium of intercommunication. Consequently, its absence is, on both grounds, absolutely fatal to scientific inductions regarding the minds of brutes.[1]

The value of the other factor in the argument clearly depends on the degree of likeness subsisting between the compared organism and our own, especially as regards the brain and nervous system. We know from experience that slight modifications in the conditions of the brain gravely affect the character of human consciousness. But the profound differences which separate man's brain from that of the nearest allied animal, are sufficiently insisted on by our adversaries when this course suits the special question in hand. Accordingly, if we obey the oft-repeated advice of Mr. Spencer's school on other subjects, and freeing ourselves from the "crude anthropomorphism of the child and the savage," impartially estimate the strictly scientific value of the evidence, we shall be speedily forced to admit that the grounds for the analogical inference to the character of the intellectual or emotional states of the monkey, the dog, or the elephant, are very slender indeed, whilst our conjectures as to the minds of insects are utterly worthless.[2]

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[1] "The total absence of language makes our best inferences but feeble conjectures. . . . It is clear that we cannot ascertain the precise bearing of articulate speech on thought and feeling until we are capable of directly observing a type of consciousness in which this instrument is wanting, and this is a, sufficiently remote possibility. Yet one may roughly infer that the absence of language implies the lack of many of the familiar properties of our own conscious life. . . . Is it not probable that the most rudimentary idea of self follows by a long interval the degree of intelligence involved in linguistic capacity?" (J. Sully, *Sensation and Intuition*, pp. 16, 17.)

[2] Careful and acute observer of the physical habits of animals as Darwin was, there is scarcely an author of any importance who has erred more seriously in theorizing about the nature of the mental faculties of brutes. The psychological training of Mr. Sully, in spite of his sympathy with evolutionism, does not permit him to ignore the profound blunders of the author of the *Descent of Man*

Were this fact realized, the Cartesian doctrine, which appears so strange and absurd to the unreflecting mind, would probably have commanded a much larger following than it has ever received. In Descartes' view, the lower animals are merely machines so ingeniously constructed that the various impressions always meet with appropriate responsive movement, although no conscious state intervenes. The fact that elaborate and complicated operations such as walking, writing, playing the piano, handling tools, are often carried on without making themselves felt, has been urged in favour of this hypothesis. Moreover, recent experiments on the bodies of animals from which the brain or head had been removed, go to prove that complicated movements requiring the co-ordination of several muscles may sometimes be performed by the organism without sensation. Nevertheless, we hold the Cartesian theory to be unsound, and accordingly we proceed to the establishment of our thesis, that:

AT LEAST THE HIGHER SPECIES OF BRUTE ANIMALS ARE ENDOWED WITH SENTIENCY.—(1) Many of the movements, of the cries, and of the expressive acts of brutes are inexplicable in regard to their origination, direction, continuation, and cessation, as the result of unconscious forces. Such complicated operations, for instance, as the search for suitable twigs by the bird in the construction of her nest, the movements of a

in this matter. Cf. op. cit. pp. 15—19. Mr. Romanes begins his work on *Animal Intelligence* (pp. 1—6) with an account of the nature of the inference by which we attribute consciousness to animals, but immediately lapses into the vulgar anthropomorphism of the unreflecting mind, as soon as he proceeds to describe and discuss the character of brute intelligence. It is interesting to note how a writer of his train of thought can here, when it suits his object, appeal to "Common Sense" against the "Sceptic." This sudden reverence for *vulgar prejudice* is a little odd. G. H. Lewes' statement, that "the researches of the various eminent writers who have attempted an Animal Psychology *have been further biassed by a secret desire to establish the identity of animal and human nature*" (*A Study of Psychology*, p. 122), receives abundant and forcible illustration in both of Mr. Romanes' works, as well as in Darwin's chapters on this subject.

terrier at the sound of his invisible master's voice, the eager way in which the dog bounds towards him and barks, and the manner in which beasts of prey capture their victims, completely transcend the capabilities of merely physically co-ordinated forces. (2) The *educability* of the lower animals is incompatible with the purely mechanical theory. We can train dogs, horses, lions, and bears to respond to words or arbitrary signs by definite movements of a complicated character, —an impossible process if they were merely machines. (3) Finally, the ingenious construction of the various sense-organs, and their similarity in many of the superior species of brutes with those possessed by men, confirm the doctrine that brutes are endowed with a faculty of sensuous apprehension. It would appear also from such facts as the barking of dogs in their sleep, the flight of defenceless animals at the sound of an enemy's voice, and the resort of most brutes to particular places for food, that they possess some of the internal sensuous faculties, such as organic memory and imagination. How far these powers in animals resemble the corresponding faculties in man, we are unable to determine. The most striking of these internal aptitudes is that directive principle of action which in common language is called *instinct*. Its character, however, will be better understood when we have distinguished between animal and rational intelligence.

THE LOWER ANIMALS ARE DEVOID OF INTELLECT OR REASON.—We have exhibited at length the nature of this faculty, the essential characteristic of which consists in the apprehension of the *universal*. The ground for our present proposition lies in the fact that brutes do not exhibit various signs which would inevitably be manifested by sentient beings endowed with intellectual faculties:

1. *Mode of Action.*—The lower animals do not show that individual free variation in method and plan of action, and that intellectual progress which ought to mark the presence of personal intelligence. Thus, brutes of the same species, when in similar circumstances,

exhibit a striking specific uniformity in their operations. They all seek their prey, build their nests, and foster their young in the same way. Amongst rational beings, on the contrary, we find in everything the signs of individual personality. The ants and bees in the time of Moses or of Aristotle worked as perfectly as their descendants of to-day; and geese and sheep acted not more awkwardly. There is no evidence that during all the time brutes have existed upon the earth, they have invented a single mechanical instrument, lit a fire, or intelligently transferred a useful piece of information from one generation to another. The few trivial instances cited here and there of some animal seizing a club or other rude implement that fell in its way, only establish the more clearly the enormous chasm which separates the brute from the rational being.

The certainty possessed by us that brutes are incapable of the most elementary inventive activity, is clearly shown by the fact that, on the discovery of a few rough but similarly pointed flint stones in Palæolithic strata, those writers who maintain the specific identity of animal and human faculties were the very first to assert that these rude contrivances are the work, not of an intelligent *brute*, but of a rational *man*. The division which separates the simplest exercises of reason from the highest forms of animal intelligence, is thus felt to be impassable. But if any species of brutes were endowed with intellect or reason, they could not have remained all these ages in the condition in which we find them. Sentient beings possessed of reason or personal intelligence would be certain to make use of their intellect in attending to, comparing, reflecting upon, and reasoning about the various pleasant or painful impressions by which they were affected. They would in this way be led to introduce modifications and improvements into their methods of work, they would invent tools and try changes to suit their surroundings, and, stimulated by curiosity—the most primitive and useful form of the desire of knowledge—they would inevitably make intellectual progress. It is absolutely incredible that beings capable of universal ideas, or of the simplest acts of generalization and inference, should have been unable during all these thousands of years to invent such a rude tool as the stone arrow-head of the Palæolithic age. In spite, therefore, of the occasional performance of apparently ingenious or complicated actions, we must conclude that the lower animals have not intellect.

2. *Rational Language.*—No beast yet discovered is capable of making use of a system of rational signs, whilst all races and tribes of men are found to be endowed with intelligent speech. Both man and brute are capable of expressing feeling, and some animals, such as the magpie and the parrot, can be trained to utter articulate sounds: but rational language, which is radically distinct in kind from these phenomena, is possessed by man alone. The essence of rational speech is the expression of *thought*, the communication of *universal ideas.* Thus in the utterance of the proposition, "This water is cool," there are involved the universal ideas of cool, and of water, as well as the most abstract notion of all, that of *being*, which is expressed in the copula. Similarly the phrases, "Milk hot nice," and "Big Bow-wow" (horse), of the infant just learning to speak, presuppose intellectual abstractive operations of a grade immeasurably beyond that to which the most intelligent animal will ever attain.[3]

Whether thoughts be manifested by vocal or visual signs is unimportant; but beings endowed with reason and associated together could not remain without inventing some means of rational intercommunication. The reflexive activity of intellect combined with the social instinct would inevitably lead these beings to manifest their ideas to each other, were such ideas in existence. The cries of one animal, of course, often serve to awaken the rest of the flock to threatening danger or prospective enjoyment, but these utterances differ in nature from rational language. They are merely indicative of concrete experiences, and the whole process is easily explicable by the well-known action of the laws of association. There is no ground for supposing that such sounds differ in kind from the emotional expressions of man.[4] Parrots have organs capable of uttering all the sounds in the alphabet, and they can be trained to articulate short phrases with wonderful distinctness, but this fact shows only the more conspicuously the absence of real *intelligence.* No bird has yet been produced, which combines even the most familiar words in *new orders* so as to form other intelligible propositions. The most accomplished parrot is separated from the child by an immeasurable distance in this respect.[5]

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[3] Chapter xvi. of Dr. Mivart's work *On Truth* contains an admirable handling of the subject of *Rational Language* Cf. also his *Lessons from Nature*, c. iv., and Max Müller, *Science of Thought*, c. iv.

3. *Moral Notions.*—Again, if the lower animals possess intellect, they must be moral beings capable of notions of right and wrong, merit and desert, justice and injustice; and they must be accountable

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[4] Deeper study of the history of language shows so clearly the immensity of the chasm between man and brute that students of Philology are inclined even to exaggerate its importance as compared with the other *differentiæ.* Thus, Max Müller asserts that "The one great barrier between man and brute is *Language.* Man speaks, and no brute has ever uttered a word Language is our Rubicon, and no brute will dare to cross it." (*Lectures on the Science of Language.* First Series, p. 340) Professor Whitney is also very emphatic at times on the point: "Moreover, man is the sole possessor of language. It is true that a certain degree of power of communication . . . is exhibited also by some of the lower animals. . . But these . . . (acts such as the dog's bark, &c) . . are not only greatly inferior in their *degree* to human language; they are also so *radically diverse in kind* from it that the same name cannot justly be applied to both." (*Life and Growth of Language,* pp 2, 3)

[5] "Animals and infants that are without language are alike without reason, the great difference between the animal and infant being that the infant possesses the healthy germ of speech and reason, only not yet developed into actual speech and actual reason, whereas the animal has no such germs or faculties capable of development in its present state of existence. . . We cannot allow them (brutes) a trace of what the Greeks called *lógos, i.e*, reason, literally, *gathering,* a word which most rightly and naturally expresses in Greek *both* Speech and Reason." (Max Müller, op. cit Second Series, p 62) "The animal without Language is as incapable of abstraction and of what we specially designate *Intellect,* as, without wings, it is incapable of flight." (G. H. Lewes, *A Study of Psychology*, p. 123.)

for their acts. But, in spite of our anthropomorphic tendencies, the universal judgment of mankind has ever refused to attribute morality or responsibility to brutes. We may, indeed, at times inflict pain on brutes in order to attach unpleasant recollections to the performance of certain actions, and we may apply moral epithets to them in a metaphorical way, just as the farmer describes a particular soil or pasture as kind or ungrateful, but a moment's reflexion will always assure us that we never do really consider the lower animals to be free responsible creatures. We make a very clear distinction in our mind between the moral character of the act by which a horse kicks a man to death, and that by which one man murders another.

4. *Absurd consequences.*—Finally, if the ingenious operations performed at times by the lower animals are to be assigned to a personal intelligence similar in kind to that of man, then, to several species, notably ants and bees, admittedly very low down in the scale of life, there must be attributed intellectual endowments far exceeding those of man himself, as well as those of the highest animal organisms. But this is obviously absurd. The true conclusion from these various considerations is that man's cognitive powers differ from those of the brute not simply in *degree*, but in *kind*. He is endowed with a personal intelligence, with a faculty of forming universal concepts, of reflecting upon himself, of communicating his thoughts to others, and of apprehending moral relations. They are utterly incapable of eliciting any such acts as these. They frequently surpass him in the range and subtilty of special senses, and still more surprisingly in the possession of certain mental aptitudes of a complex but uniform character comprehended under the term Instinct, but they are separated from him by the boundary which divides rationality from irrationality.

INSTINCT.—The various ingenious operations performed by brute animals are usually allotted to *instinct*, but about the inner nature of this endowment, it seems to us that very little is yet positively known. The epithet *instinctive* is frequently employed in a wide sense to include acquired habits of action, original dispositions to any form of movement, whether random or purposive, and also purely reflex actions devoid of all antecedent or concomitant consciousness. In modern Psychology there is a tendency to confine the adjective to *conscious* acts which are *connate* or *unlearned*, *complex*, and *purposive* in character. Strictly speaking, Instinct is not a continuous impulse towards a special mode of action, but an aptitude by which this impulsive action is directed or guided.

The Scholastic writers classed this faculty among the internal senses, under the title of the *Vis Æstimativa.* Conceived according to their view and in harmony with common usage, *Instinct* may perhaps be best defined as *a natural aptitude which guides animals in the unreflecting performance of complex acts useful for the preservation of the individual or of the species.* In the Scholastic system the *Vis Æstimativa* is a property of the sentient soul, analogous though inferior to rational judgment in man. It is of an organic character, but involves more than the direct response of the special senses. It does not merely distinguish between pleasant and painful impressions, but guides the animal in a series of movements remotely serviceable to its nature. The lamb, St. Thomas observes, does not flee because the colour or form of the wolf is disagreeable, and the bird does not collect twigs for its nest because they are attractive in themselves; but both animals are endowed with a faculty which under appropriate conditions is excited by these phenomena to guide them in the execution of an operation ulteriorly beneficial to their nature. Yet neither has a consciousness of the formal relation of such an act to the end to be attained; neither may have had any previous personal acquaintance with that end; and neither is led to the act by a process of reasoning.

The essential features of Instinct are well-explained in the following passage: "The character which above all distinguishes *instinctive* actions from those that may be called *intelligent* or *rational*, is that they are not the result of imitation and experience; that they are always executed in the same manner, and, to all appearance, without being preceded by the foresight either of their result or of their utility. *Reason* supposes a judgment and a choice: *instinct*, on the contrary, is a blind impulse which naturally impels the animal to act in a determinate manner: its effects may sometimes be *modified* by experience, but they never *depend on it*."[6] Again: "One of the phenomena fittest to give a clear idea of what ought to be understood by Instinct is that which is presented to us by certain insects when they lay their eggs. Those animals will never see their progeny, and can have no acquired notion of what their eggs will become; and yet they have the singular habit of placing beside each of those eggs a supply of elementary matter fit for nourishing the larva it will produce, and that even when that food differs entirely from their own, and when the food they thus deposit would be useless for themselves. No sort of reasoning can guide them in doing this, for if they had the faculty of reason, facts would be wanting them to arrive at such conclusions, and they must needs act blindly."[7] Such facts, which might be multiplied indefinitely, prove that animal "intelligence" is different, not in *degree*, but in *kind* from human intellect.

The *origin of instinct*, together with the formation of organs, has ever been one of the most insuperable difficulties to those who deny the existence of an Intelligent Author of the Universe. Mr. Herbert

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[6] Milne-Edwards, *Zoologie*, § 319.

[7] *Id.* § 327. Cf. Janet's *Final Causes*, pp. 86, 87. "The young female wasp (sphex), without maternal experience, will seize caterpillars or spiders, and stinging them in a certain definite spot, paralyze and deprive them of all power of motion (and probably also of sensation), without depriving them of life. She places them thus paralyzed in her nest with her eggs, so that the grubs, when hatched, may be able to subsist on a living prey, unable to escape from or resist their defenceless and all but powerless destroyers. Now, it is absolutely impossible that the consequences of its actions can have been intellectually apprehended by the parent wasp Had she Reason without her natural Instinct she could only learn to perform such actions through experience." (Mivart, *Lessons from Nature*, pp. 201, 202. Cf. also *On Truth*, c. xxiii.)

Spencer, and thorough-going evolutionists generally, seek to explain instinct as *hereditary experience.* It is described sometimes as "lapsed intelligence," and sometimes as a "habit acquired by Natural Selection" during the history of the race. It is indeed possible that some native tendencies might be accounted for in the former way. Certain actions intelligently and frequently performed might conceivably pass into organic habits capable of hereditary transmission; and it is also possible that advantageous *modifications* might be effected in *existing* instincts by means of Natural Selection. But, whilst we readily admit so much, we affirm that it is futile and absurd to seek to explain instinct in general in this way, and we merely ask the reader to consider how the instinct of sucking in the human infant, or the parental operations of bees, ants, and birds, could be the result either of Natural Selection, or of the intelligently designed actions of individuals of past generations. Even if the last alternative were not inadmissible, the difficulty would be only put back a single step. Whence came the intelligence of these reasoning predecessors of our present bees and babies?[8]

The investigations which we have now made into the character of the operations of the animal "soul," render clear the deductions we are justified in drawing concerning its nature, origin, and destiny. The whole weight of analogy proves that in the brute, as in man, the vegetative and sentient principles are identical. This brute "soul," however, *is not a spiritual substantial principle*, it is not a substantial form *intrinsically* independent of and *separable from* its material subject. This doctrine follows immediately from the theses just established. The brute manifests no spiritual activity. It is not endowed with rational intellect nor, consequently, with free-will. In other words, all the mental actions exhibited by it are of the lower or sensuous order, and therefore intrinsically or essentially dependent on a material organism. We are accordingly led to conclude that the ultimate principle from which these operations proceed is itself intrinsically and essentially dependent on matter. *Actio sequitur esse;* as a being is, so it acts; but all the mental acts which we are justified in ascribing to brutes are of an organic or sensuous character. Therefore we are bound to infer that the animal "soul" is essentially dependent on the material organism and inseparable from it. It is, consequently, incapable of life apart from the body, and it perishes with the destruction of the latter. On account of this intrinsic dependence on matter, the soul of the brute was spoken of by the Scholastics indifferently as *material* and *corporeal.* They did not, however, intend by these terms to imply that the principle of vital activities is a bodily substance of three dimensions. They simply meant to teach that it depends absolutely on the material subject which it actuates, just as the heat depends on the matter of the burning coal, and the stamped inscription on the wax. They maintained, moreover, that though not spiritual, the vital principle in animals must be of a simple nature, inasmuch as the activity of sentiency which proceeds from it is a simple immanent operation.

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[8] For an excellent handling of the Evolutionist theory of the Origin of Instinct, cf. *Science and Scientists*, by Rev. J. Gerard pp 100, seq. Cf. also Janet, op. cit. pp. 80—90, 255—259.

The animal soul is thus, in Scholastic language, a substantial form *completely immersed* in the subject which it animates. Accordingly, it does not require a Divine Creative act to account for its origin in each successive being any more than a Divine Annihilative volition to effect its destruction. It is a result of substantial transformation produced by generation. An existing vital energy is capable by its action of reproducing or evoking from the potentialities of matter a new energy akin to itself. But, as at present new life ever proceeds only from a living agent, so *a fortiori* in the beginning the primordial act by which animal life was first educed from the potentialities of matter must have been that of a Living Being.

Readings.—The ablest English treatment of Animal Intelligence which has yet appeared is Dr. Mivart's recent work, *The Origin of Human Reason;* cf. also *La Bête Comparée à l'Homme,* par R. P. De Bonniot, S.J. (Paris.)

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